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ABSTRACT

This report describes the education of gifted and talented students in the Calgary (Alberta, Canada) Public Schools based on achievement information, classroom observation, and a survey of parents and teachers. Chapter 1 introduces the report, outlining recent changes in the gifted education program, controversy over the development of gifted education programs, and the socially constructed nature of giftedness. Chapter 2 deals with performance of gifted students in grades 5, 6, 8, and 9. Strong performances were exhibited in writing, while performance was not as impressive in the arithmetic domain. Students appeared to value intellectual effort and resisted the pull toward academic mediocrity. Chapter 3 presents the results of a survey of 202 parents, 107 teachers, and 26 people who were both parents and teachers. The survey identified respondents' views on issues in gifted education, characteristics of gifted students, and quality of gifted programs. Chapter 4 reports on visits to GATE (Gifted and Talented Education) classes in both congregated and integrated settings. Discussion of the school visits is organized around the topics of leadership and school philosophy, student activities and behavior, programming, selection and monitoring, and the importance of the arts. A concluding chapter makes overall observations and suggestions. Appendices contain example assessment tasks and scoring keys, summary statistics, and a copy of the survey questionnaire. (JDD)

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Gifted Education in the Calgary Public Schools

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A report presented to the Calgary Board of Education

April 1989

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A Study of Gifted Education in the Calgary Public Schools

Chapter 1

Introduction

It is not easy to describe the education of gifted and talented students in the Calgary Public Schools. The entire area has been the focus of reports, evaluations, and task forces for the past decade. The difficulties arise in part because identification and education of gifted students are topics upon which there is great disagreement and strongly staked out positions. To add to the difficulty, economic pressures have forced the Board to examine programs more closely and to make choices among competing claims

In my last report, I noted that the 1985 Comprehensive Plan presented a policy toward the education of gifted and talented students that appeared to be humane and pedagogically defensible. Although there were some difficulties being experienced in its implementation, it was clearly superior to policies in the two other jurisdictions with which it was compared. Even as that report was being written, the cutback in educational funding was being felt and parts of the plan were modified substantially and in some cases eliminated entirely.

In undertaking the second year of the study, I was sensitive to the upheaval experienced in the CBE approach to gifted education between the spring of 1987 when the changes were first announced, and the spring of 1988 when a fairly stable system was in place. Since information collected during that period would reflect the upheaval more than the success of the new policies, no systematic attempt was made to study the process of change. Beginning in the spring of 1988, I began to study the revised approach to gifted education by collecting achievement information from gifted students in both the congregated and integrated settings. Later in 1988, I visited the GATE program in Queen Elizabeth and watched several classrooms in action. Early in 1989 similar visits were made to four schols which have a large cohort of identified gifted students.

The context of gifted education in Calgary has more than the usual complexities. For many historical reasons the education of gifted and talented students has been the focus of intense debate that has gone well beyond that experienced by other jurisdictions in Alberta and elsewhere in Canada. Because positions are so firmly entrenched, they are not likely to change in the near future. (Indeed the entire system might be better for having such concern and debate.) However as an external observer, I felt that it would be useful to examine some of the issues in the debate. With this in mind, parents and

teachers who are involved with the education of gifted students were surveyed in an effort to portray their views of giftedness and gifted education.

It is my belief that the concepts that underlie giftedness and gifted education are only partly based on the science of human development. The larger portion is socially constructed. Like many ideas in education, notions of giftedness come from a variety of sources: people's own individual experience, hopes and aspirations; writings of influential educators; non-systematic observation; religious, political and social teachings about human nature; and even from the stories and traditions that make up our cultural heritage. If this is so, then many of the questions that are raised in discussions of gifted education are matters of belief and philosophical point of view and as such are not easily influenced by research findings. Being gifted is not like having chicken pox. There are many definitions of the condition, and among people who accept each of these, there are differing opinions on what if anything should be done about it. Moreover, education is not only an instrument of society, but it is also a place of individual growth and development. So there are competing views on how children should be educated. Often these views are very strongly held because they are tied to fundamental values of love and care for children on the one hand, and societal goals on the other. In the context of relatively fixed resources, democracy and fair play may be viewed through the filters of each parents desire to have the best possible education for his or her own child.

While it is not surprising that controversy exists, school boards must examine and try to choose among or balance claims for resources. Research seldom provides complete answers to educational questions. At best it contributes to the debate by providing information that might otherwise be unavailable or overlooked. It is in that spirit that the present report is submitted. An attempt has been made to raise and examine issues in a way that will contribute positively to the evolution of policy in relation to the education of gifted and talented children.

The report is divided into five sections. Chapter 2 deals with the study of student performance that was carried out in June of 1988. Chapter 3 presents the results of the parent teacher survey done in December of 1988. Chapter 4 is a report on the visits to school and classes carried out during the winter of 1988-89. The concluding chapter draws the information together by responding to the questions raised in the original charge from the Board.

Chapter 2

Student Performance

A. Samples

Performance data were collected from three groups of students at grades 5, 6, 8, and 9. One group was made up of the 220 students who were attending the GATE program at Queen Elizabeth. At the time of the study there were 33 students in grade 5, 66% of whom had been in the Oakley program. The corresponding figures for grades 6, 8, and 9 were: 73% of 37, 77% of 52, and 83% of 41. These figures are presented to show that although the GATE program had been in place for almost one year, the selection process which was used at Oakley Centre would be an influential factor on the results.

The second group consisted of a sample of students who had been identified by EASG as "generally intellectually advantaged" (GIA) and who were attending regular schools. The samples at grades 6 and 9 were students who had been in the sample for the 1987 report. Students in grades 5 and 8 were selected from schols that had a large cohort of identified GIA students under the assumption that such schools would be likely to make provisions for gifted students.

The third group of students consisted of combined samples of "running mates" and nominated students. The running mates were students in EASG files who were not identified as gifted but were of high ability and who could benefit from enrichment activities. In last year's analysis there were enough of these students to warrant a separate category. Because the formal process of identification was curtailed, no new running mates had been identified during the year. This factor and the natural attrition meant that the number of running mates was small (especially at the lower grades). Consequently they were combined with the nominated students for this year's analysis. It will be recalled that last year a group was created by asking teachers in schools with a large number of GIA and running mates to nominate other students who appeared to have high academic potential. They were asked to consider girls in particular. This group was referred to as the Nominated group. The procedure was repeated this year for grades 5 and 8.

In summary, three groups of students were formed. The GATE group consisted of all students enrolled in the GATE program at grades 5, 6, 8 and 9. The GIA group for grades 6 and 9 was made up of all of the 1987 GIA sample, and the current GIA sample for grades 5 and 8 was selected from EASG files by taking all GIA students from schools

involved in last year's study plus GIA students in other schools where numbers warranted it. The Nominated group at grades 6 and 9 was last year's 5 and 8 group. For the current 5 and 8 sample, all running mates on file at the schools involved in the GIA sample were tested, and teachers were asked to nominate an additional two or three students. The number and location of students in the three groups are shown in Appendix 1.

B. Performance Measures

Information on three kinds of performance measures was collected at all grade levels. Although the specific instruments differed from grade to grade they are grouped into: background, approach to learning, and outcome. Background measures consisted of ability and achievement tests that had been administered at least two years prior to the current study. For grades 5 and 6, the background variables were the Vocabulary and Paragraph Comprehension subtests of the Canadian Tests of Basic Skills (CTBS) which had been administered in grade 3 as part of the regular district-wide testing program, and the Verbal and Non verbal components of the Canadian Cognitive Abilities Test (CCAT) which was administered in grade 4. The background variables for the grade 8 and 9 students were the locally developed district wide Mathematics Test which is administered in grade 6, and the three subscores of the CCAT (Verbal, Non verbal and Quantitative) which is administered in grade 7.

Approach to learning was assessed using the Learning Process Questionnaire (LPQ) which was developed in Australia and was revised for use with Canadian students. This instrument divides students' styles into two broad categories - motive and strategy. Three approaches that cut across motive and strategy are then described: surface, deep and achieving. The instrument produces six scores:

1. Students with a high Surface Motive aim to meet requirements minimally. Their school life is a balancing act between failing and working more than is necessary.

2. Students who use a Surface Strategy limit their efforts to the bare essentials and reproduce results through rote learning.

3. Students with Deep Motive have an intrinsic interest in what is being learned. They try to develop competence in particular academic subjects.

4. To use a Deep Strategy is to discover meaning by reading widely, inter-relating new ideas with previous knowledge etc.

5. To have an Achieving Motive is to try to enhance ego and self esteem through competition, and to obtain the highest grades whether or not the material is interesting.

6. Students using an Achieving Strategy try to organize their time and working space to achieve specific specific goals. They follow up all suggested readings, schedule time, and behave as model students regardless of the course.

The basic outcome variables used at all grade levels were arithmetic and writing tasks similar to those used last year. The SOLO Taxonomy rates responses into one of five levels according to the degree of abstraction and differentiation in the response. The five levels of SOLO responses are described below.

1. Prestructural responses are responses that do not address the issue in any meanful way. Often a prestructural response repeats the question.

2. Unistructural responses attend to one facet of the question and ignore other aspects.

3. Multistructural responses attend to several facets of the issue or question without relating them to each other. There may be inconsistencies in the system.

4. Relational responses attend to several aspects of the issue and relate them to each other. There is usually no inconsistency in the system, but the responder does not go beyond the immediate situation.

5. Extended abstract responses go beyond the data and view the issue as a member of a class of similar issues. Often no closure is reached. Depending on the task, conclusions may be held open or qualified to allow for logically possible alternatives.

The three arithmetic tasks and two writing tasks for grades 5 - 6 and 8-9 are shown in Appendix 2 together with scoring rules and examples.

In addition to the tasks developed especially for this project, scores were collected on certain tests that had been administered through the regular CBE testing program during the year. The current results from the Vocabulary and Comprehension subtests of the Canadian Tests of Basic Skills were used as outcome indicators at grade 6, and the Vocabulary and Comprehension scores from the Nelson Reading Test were used for the grade 8 students. At grade 9, the Test of Appraising Observations which is a measure of one aspect of critical thinking was administered especially for this research.

C. Introduction to Results

Last year the description of results focussed on comparisons among students in different settings. While this is of interest, further experience with the programs

suggests that such an emphasis is inconsistent with the thrust of the Comprehensive Plan. In particular it set up an implicit expectation that the performance of Oakley and GIA groups should differ. In retrospect this was a mistake. The Comprehensive Plan was quite clear in its direction that students should be educated in the setting (either congregated or integrated) that best suits their needs. If the selection and education process is working properly, then there is little reason to expect differences in performance between the two groups. The GATE students whether transfers from Oakley or direct enrollments are placed in a congregated setting because they are not flourishing in their previous environment. They are bright, but not necessarily the brightest or most highly achieving students. They may have been in a school in which there was no other student with the same capability and the load on teachers may have prevented the development of an adequate individualized program. A few bright students have a unique way of doing things that does not fit well in a regular setting. Occasionally the environment of the school and the desire to be part of the social stream discourages a particular student from developing his or her talent in that setting. Like students, teachers have varying talents and some are better than others at working with bright students in a regular setting. Thus, given the complex combinations of student abilities and personalities, home backgrounds, social and school environments, it is not unreasonable to find that different students thrive in different settings. This year the approach to data analysis was to seek explanations and to examine comparisons in light of the students being served and the programs being offered. The results will be presented by grade level first, then trends across grade will be examined. To avoid the confusion of too much data, summary statistics for all variables are given in Appendix 3 and the present chapter is a verbal portrayal of the results.

Grade 5

The results from the background variables showed that all groups had excellent scores on Verbal Subtest of the CCAT which was administered in grade 4, Three quarters of the students scored above the 75th percentile, whereas on the Non verbal section, the most of the students fell between the 25th and 75th percentiles. Thus we would conclude that most of the students in the three groups have very high verbal skills, but fairly ordinary non verbal skills.

Because the "3/4 over 75%" rule of thumb will be used again, it may be helpful to explain it in more detail. When most standardized tests are developed, a table of norms is produced which relates a raw score to the proportion of students in the national sample who fell below that raw score. For example, in the Verbal component of the CCAT

adminstered at grade 7, 75% of the students in the national sample received a score of 65 or less. A raw score of 65 is said to correspond to the 75th percentile. Now the students in the current study should do well against the national values because most of them are intellectually gifted and the national sample was chosen to represent all students. In the present study as a simple guide I looked to see if 3/4 of our students exceeded the 75th percentile on the national norms. It could be argued that this is not a very high standard. Perhaps we should expect almost all of our students to beat the 75th percentile! However the 3/4 over 75% guideline fits many of the results that follow.

For both GIA and GATE, almost three quarters of the students are higher than 75% of the national norming group according to the scores that they received on two subtests of the Canadian Tests of Basic Skills (Vocabulary and Comprehension). As expected where differences among groups occur, it is the Nominated sample that is slightly lower.

In general, the background variables present a picture of students who do very well on tests that require verbal skills. In both the GIA and GATE groups, there are one or two students who are performing at a very low level on these background tests. This finding is consistent with the observations made by many parents and teachers of gifted students that there are always a few that perform at a low level on standardized tests of ability or achievement.

In interpreting the results of the Learning Preference Questionnaire, we find that the Canadian norming study is still in progress, so appropriate comparison values are not available. However the Australian norms give some guidance. As a whole, the three groups are lower than the Asutralians on Surface Motive, but the GIA group is well below the other two. It suggests that our students are not driven a blind quest for marks. The purpose of special programs for gifted students is to encourage an abiding interest in learning, and it would be disappointing to find high adherance to Surface Motive. The results for Surface Strategy are not quite so encouraging because all of the groups appear to have relatively high levels. The explanation for this may be found in their past experience. Often teachers implicitly encourage a surface strategy by designing tests which emphasize memory for knowledge. Students who have good memory for detail can do well on such tests by memorizing the material. In the main, students in this study have been successful in their past academic careers, and for many of them such strategies may have contributed to their success.

It was encouraging to find that all groups were higher than the Australian norms on Deep Motive although their strategies were not as consistent. These and other findings suggest that if we are to help students to understand and master content, extract

generalizations and apply knowledge to new problems, we must provide them not only with the motive to do so, but also help them to develop strategies.

The achieving approach to learning and study is slightly different from the surface and deep approaches in that it can occur with either one. A student can be motivated to achieve as well as to understand the material in a deep and abiding fashion, whereas it is unlikely that anyone could simultaneously subscribe to both a deep and surface approach to a subject. The results for the three groups seem generally comparable to Australian norms on Achievement Motive but are slightly higher on Achievement Strategy. Once again this may be related to the kinds of direction that they receive from home and school.

The results of the SOLO tasks for both arithmetic and writing were analysed here and at other grades, by scoring the individual tasks according to the taxonomy. Then each student was assigned a single score based on his or her best performance. This was done in preference to averaging the scores because it was noted that many students seemed to be able to get more involved in one task than in another. Since it was difficult to find tasks that would be motivating to all students, it was decided that the fairest approach would be to use the best score.

On the writing tasks, only four of the students wrote an extended abstract response. Such a response must place the information given into a more general context from which other instances could be described. This is a very sophisticated level, and while it seems likely that many gifted students in grade 5 are capable of this level of thought, the problems provided to them may not have brought the skill out. Almost half of the students provided responses that were multistructural. This meant that in composing their arguments, they attended to different features of the problems, but did not integrate them into a coherant whole. A similar pattern emerged for the arithmetic tasks, although in this case, no student produced an extended abstract response.

In comparing groups, it turned out that the proportion of students in each group who achieved particular levels was about the same except that three out of the four students who gave extended abstract responses came from the GATE group. As mentioned earlier, in arithmetic, there were no extended abstract responses, but moving down one level, half of the 16 relational responses came from the GATE group. At the unistructural end of the arithmetic hierarchy, 16 of the 33 students came from the Nominated group suggesting that the GATE students' performance was superior to the Nominated group.

Grade 6

As in grade 5, the background variables for grade 6 consisted of The CTBS Vocabulary and Comprehension Tests which had been administered in grade 3, and the fourth grade CCAT Verbal and Non verbal tests. On the three background tests that relate to verbal skills, 3/4 of the students in the samples scored above the 75th percentile on national norms. This is consistent with the grade 5 results and with the implicit selection process that appears to recognize ability and achievement in this domain. Differences among groups were small, and where they occurred there was a slight advantage to the GIA group. A few students had abnormally low scores and these may be more indicative of motivation than true representations of their ability.

In the Non verbal area, student abilities were very similar to the national standards. As in grade 5, this may arise from the rather modest relationship that exists between verbal and non verbal abilities, so that when we choose students on the basis of their verbal skills, they will not necessarily be outstanding in non verbal areas. At a more general level, these results draw our attention to the variation in abilities that exist within individuals and argues against programs that assume intellectual talent to be on a single continuum.

Learning preference data for the sixth grade were similar to the fifth grade data with a tendency to be lower on Surface Motive (i.e. aiming to "just meet" requirements) than their Australian counterparts, and slightly higher on Deep Motive and Achieving Strategies. Differences among groups were very small.

There were two kinds of outcome measures available at grade 6. The results of the CTBS Vocabulary and Comprehension Tests showed that about half of the students scored above the 75th percentile on Vocabulary, but almost all of the students exceeded this level on Comprehension. Comparison with the results that these students achieved on the same variable in grade 3 suggests that relative to the Canadian cohort, bright students in Calgary are moving farther ahead in the area of reading comprehension.

SOLO results indicate that surprisingly few students gave extended abstract responses on the writing subtasks (8 out of 106), and about 1/3 gave unistructural responses. Students may not have found the tasks to be sufficiently engaging to encourage higher level responses. The biggest difference between groups occurred between the GIA and Nominated students. One half of the GIA students produced responses at the unistructural level, while only 20% of the Nominated group were at that level. This seems to be consistent with the fact that Nominated students tended to be people who were performing well in school. In fairness to the GAI group it should be pointed out that they did contribute one half of the extended abstract responses.

Performance on arithmetic tasks was slightly better on average although there were only 5 students who gave extended abstract responses. This was compensated for by the relatively small number (16) who fell at the unistructural end. Between group comparisons showed that most of the unistructural respondents came from the Nominated group but beyond that the group performances were very similar.

In general, the performances on the SOLO tasks were disappointing. It is true that some responses were excellent, but in the main, the products did not seem to reflect the insight that would be expected from a group of intellectually advantaged students. In an effort to locate reasons for this, the two grades were combined and relationships between SOLO performance and LPQ results examined. The entire set of grade 5 and 6 students were broken down according to their SOLO levels in mathematics and writing, and the scores of the LPQ tests were examined. No trend was detected in the arithmetic data, but the results for writing suggest that higher SOLO performance goes along with - (a) lower scores on Surface Motive and Strategy, (b) higher scores on Deep Motive and Strategy, and (c) higher scores on Achieving Motive and Strategy. None of these relationships is strong, but all have implications for instruction. They suggest that programs for gifted students should encourage students to develop serious interests in their work and then carry this through with a strong focus on learning and thinking skills.

Grade 8

The background variables for grade 8 students consisted of the results of the mathematics test which the Calgary Board administers to students in grade 6 as well as the three subscales of the Canadian Cognitive Abilities Test (Verbal, Non verbal and Quantitative) which are administered in grade 7.

Three quarters of the students scored above the 75th percentile on the national norms for CCAT Verbal and Non verbal, and the same proportion scored above the 75th percentile on the Calgary Grade 6 Math Test. In addition 3/4 of the GATE and GIA students scored above the 75th percentile on the CCAT Quantitative scale. The only exception to the "3/4 above 75 " trend occurred with the Nominated group on CCAT Quantitative. Despite the generally high performances on the background variables, there were several students whose scores were well below the 25th national percentile. These anomalies occurred in all of the groups and illustrates the variability in talent that even teachers of gifted students face.

The results of the Learning Preference Questionnaire showed that all groups tended to be below the Australian norms in the Surface areas, to be elevated in the Deep

areas, and to be slightly lower on Achievement Motive (although not Achievement Strategy). The picture that emerges suggests that the groups are slightly more scholarly than regular Australian students of the same age level. The greatest difference occurred on Surface Motive where our students were far less motivated by the superficial aspects of school achievement than the Australians. Differences among the individual groups were not substantial.

Tabulation of SOLO responses for arithmetic and reading indicated that for arithmetic, only seven students provided an extended abstract response and the remaining students were distributed evenly across the other categories. Of the seven students who responded at the extended abstract level, six came from the GATE program. The group comparison showed that there were proportionately too many GIA students at the unistructural level (Almost half of the GIA students fell here). The picture for writing was more encouraging with only 11 students at the unistructural level. Nine of these came from the GATE group, but seven of the thirteen extended abstract respondents came from the GATE group which attests to the great variability among these students. As noted earlier, a contributing factor to this could be the selection system that was in operation for several years in which the Oakley school administration and EASG tried to blend gifted children with different needs. This may have resulted in greater variation in performance. Other differences among the groups on the writing tasks were not large.

In addition to the SOLO and LPQ variables, the Nelson Vocabulary and Paragraph Comprehension tests were administered to the grade 8 students during the regular testing program. As was expected, all groups scored well above the national norms, and indeed in all but one case 3/4 of the students were above the 75th percentile. Differences between the medians of the three groups were small, but there were a few outlying students in each of the groups which suggests the presence of a few LD students in the GATE and Nominated groups. It is interesting to note again, that if we thought of giftedness as being roughly in the top 5% of any academic area, there are many students who are not performing at that level.

The summary view that emerges is one in which all groups show above average performance on standardized tests. On the SOLO tasks, the number of students that gave extended abstract responses is not large. Putting the two findings together, we begin to suspect that the gifted students in grade 8 who participated in this study tended to be a group of conventionally bright students that either could not or did not extend themselves when confronted by a novel task.

Grade 9

The scores for the ninth grade students on the background variables were not as high as the scores for students in grade 8 and in particular, their scores on the CBE grade 6 math test were not substantially above the city norms. In fact only one half of the GATE and Nominated groups were above the 75th percentile. The CCAT results for both GIA and GATE students were generally higher than for the Nominated students although this difference was not great for the Quantitative subscale.

The results for the LPQ are very similar to those found at grade 8. Perhaps the greatest difference was that ninth grade students have slightly higher Surface Motives than the grade 8 cohort .

Almost one third of the 99 students who wrote the test gave responses to the arithmetic tasks at the SOLO unistructural level, and only 6 responded at the extended abstract level. This was very disappointing. The writing results were much better with 20 students at the extended abstract level and only 3 unistructural respondents. The most striking difference in performance among the groups was the disproportionately poor performance of GATE students on the arithmetic tasks. They contributed 13 of the 27 unistructural responses, and only 5 of the 30 relational and extended abstract responses. The GATE performance at grade 8 was very similar to the performance of the other two groups, which suggests that the grade 9 results may be more characteristic of that particular group than of the program itself.

The Test of Appraising Observations was also administered at the grade 9 level. In comparison to the tenth grade norms that are supplied with the test, all three groups performed very much like the norming sample indicating a strong but not outstanding result.

As in the case of grades 5 and 6, the results for grades 8 and 9 were combined, and the LPQ variables were examined for students at different levels on the SOLO tasks. Again, the results for writing produced some interesting trends. Students who responded at higher levels of the SOLO taxonomy also tended to be: (a) lower on Surface Motive and Strategy, (b) higher on Deep Motive and Strategy, and (c) higher on Achievement Motive and Strategy. Although the relationship is not strong it does corroborate the common sense notion that when students take an academic approach to a their learning, the results can be discerned on novel tasks. In-school observation suggests that teachers in both GATE and GIA settings encourage the the use of "Deep" strategies and it appears that this can pay off. Research being carried out by Mulcahy and others at the University of Alberta and Andrews at the University of Calgary suggests that these "meta-cognitive" strategies (literally - thinking about your own thinking)

can be taught, and are best taught in the context of the ongoing subject matter. It is important to complete the learning process with evaluation instruments that encourage the use of deeper strategies. Otherwise students will begin to gear their efforts to reproducing the superficial features of the curriculum.

Trends over Time

Two kinds of data relate to developmental trends. SOLO results are available for students in grades 6 and 9 from the previous year. For both grade levels, some of the tasks and scoring procedures used previously were different from those used in the current report,but an attempt was made to equate them . At grade 9, 78 students were found who had taken the SOLO arithmetic tasks in the previous year and 79 students were found who had taken the writing tasks. The results for the writing task indicated that 51 students had increased their SOLO performance, 22 had stayed the same and 6 had moved down. Differences among the three groups were very small. The results for arithmetic showed that 19 had improved their standing, 38 had remained the same, and 21 had moved down. A reason for the poorer showing on arithmetic than on writing may have been that in the first year one of the arithmetic tasks was actually a cluster of several smaller tasks and relatively high scores could be obtained by scoring well on one of the smaller tasks. In other words the results from year one may have been inflated. On the other hand, as noted earlier, in the current testing, the grade 9 students did not seem to perform as well as the grade 8 students. Perhaps the level of commitment at the ninth grade was not as high as at the eighth.

Between the fifth and sixth grades the SOLO comparisons were made for the 78 students who had done the tasks previously. The results were poor. In arithmetic, 16 students raised their SOLO scores, 35 stayed the same, and 27 had lower scores. In writing, the results were about the same with 21 improvements, 27 at the same level, and 30 decreases. It is difficult to understand these results. There were proportionately the same for all three groups, and if anything the familiarity with the tasks should have been a factor in favor of improvement. Perhaps the fact that there were more tasks last year allowed the student a broader opportunity to display their best performance. (The number of tasks for both writing and arithmetic was reduced this year in an effort to cut down on the amount of testing time required from each student).

LPQ results were examined over the four grade levels for each of the groups. These cross sections do not give a precise picture of growth because they describe different students at each grade level. However the clues that they give for the potential change are interesting. The combined Surface Motive-Strategy data showed GIA students

being very consistent over the grades. The GATE profile falls from grades 5 to 8, and rises slightly. The most interesting feature of that gradeis the large spread in the scores. It appears that there are some students who subscribe to the Surface approach while others do not. Generally speaking, we would prefer to see a falling trend on this variable especially for students in gifted programs. The GATE data are consistent with this goal except for grade 9 which may be an anomaly. The GIA data are less clear.

Deep Motives and Strategy are tied to an abiding interest in what is being learned. The GATE students showed a slight tendency to rise as you go from grade 5 to 9. The GIA group is fairly high at grade 5, drops at grades 6 and 8, then rises again at grade 9. The Nominated group seems to fluctuate around a common level. This variable is central to the goals of gifted education and it is hoped that the cross-sectional data for the two gifted groups accurately reflect growth over time. Some researchers in adolescent psychology suggest that the "tasks of adolescence" - developing an adult set of values, socialization, etc. can get in the way of intellectual work. Our data suggest that for most of the students (with some extraordinary exceptions), adolescence does not seem to be interfering with the development of Deep Motives and Strategies toward learning.

The medians for the combined scores on Achievement Motive and Strategy (enhancement of self esteem through competition, organizing time to study and follow up details)droped from elementary to junior high. There are many possible reasons for this. As noted above it could simply be a function of entering adolescence. Many students at the junior high level participate in an imposing array of out of school activities and don't have a lot of time to spend on the details of achieving strategies. Academic competition may be motivating only to those few who have a chance of winning. Whatever the reason, the slight downward trend in the achieving areas is not a cause for great concern when viewed in the context of encouraging trends in the deep areas.

Summary and Reflections

As in all school based research there is good news and bad news. The good news is that there are some very strong performances among gifted and near gifted students both in the congregated setting and in the regular program. These strengths are most obvious in the writing area. In the arithmetic domain, performance is not as impressive. Part of this derives from the nature of mathematics instruction. Personal visits to GIA and GATE classes revealed that mathematics instruction is moving in the direction that encourages critical and divergent thinking in arithmetic, but there is a legacy of conventional algorithmic teaching that is difficult to overcome. It takes a long time for many of these students to understand mathematics as a creative, intellectually satisfying activity as

constrasted with a utilitarian skill. Perhaps the proportion of students in this gifted population who have an exceptional mathematical talent is small.

The other good news is that most of the students have a learning style that is consistent with the goals of gifted education. They appear to value intellectual effort . The data suggest that superficial motives and strategies (getting by) are not held by many students. It is pleasing to see that the junior high school students seem to be resisting a tumble toward academic mediocrity . This may be one of the great success stories of the congregated setting where students who may not have been able to resist being pulled down to a common level in other settings can come together and work as a group. In many of the integrated settings, the size of the intellectual peer group and the efforts of school staff work to encourage an academically stimulating environment and when this is matched with appropriate individual characteristics, we see that the two settings provide very useful alternatives.

Finally, the performance data and the background information suggest that the students who have been labelled as gifted actually have a range of abilities and achievement that goes from fairly ordinary to truly exceptional. The problem is in the labelling. Giftedness is a concept that is in disarray. It can be defined, but when it is used operationally it produces contradictory implications and so we find "gifted students" whose vocabulary and reading scores fall below the 25th percentile on the national norms, or gifted grade 8 students who can produce arguments that would do credit to a university student, who don't know how to attack a novel arithmetic problem. The single most surprising thing about gifted students as a group is that the variations in abilities and achievements are so large. If the goal of labeling and clustering students is to provide a more uniform group for instructional purposes, I do not hold out much hope for success. There are very few renaissance students. Most gifted students appear to have strong verbal skills and are reasonably motivated to use them. In the context, the programs at GATE and in many of the regular settings appear to be filling their needs.

Chapter III
Views on Giftedness

As noted at the beginning, gifted education has been the subject of some controversy among people served by the Calgary Board. As an outsider I was puzzled by this because while the topic is of some concern in other jurisdictions, the heat generated is not nearly as noticeable. Background reading and dicussion with various knowledgeable people (parents, teachers, experts and researchers) indicated that the terms, "gifted" and "gifted education" mean different things to different people. As one way of capturing this diversity, a questionnaire was developed in which people were asked to describe some of their beliefs about giftedness and gifted education. The questionnaire was sent out to parents and teachers of gifted students in 26 schools in which there was a large number of gifted students, and to parents and teachers of GATE students. Altogether 335 people responded (202 parents, 107 teachers, and 26 people who identified themselves as both parents and teachers). While not all people responded to all parts of the questionnaire, a large proportion provided written comments. The questionnaire and the summary results are provided in Appendix 4.

Issues in Gifted Education

Eight pairs of contrasting ideas were presented to respondents and they were asked to indicate which position was a better representation of their view on the issue. The first three issues all related to the nature of giftedness: Is it single faceted or multifaceted? Is it inate and static or is it dynamic and changing? Is it essentially a quantitative notion (top 4%) or is it qualitative and defined by identifiable characteristics?

The most common view is that giftedness is a broad multifaceted concept involving intelligence, personality traits and social style. About 50% or the respondents subscribed to this view which is the stand taken in the comprehensive plan and in the background materials used by EASG. A strong minority of about 25% said that giftedness is essentially about intelligence.

The question on the dynamic vs. static nature of giftedness was raised because it related to one of the strategies found in the comprehensive plan. It was thought that special service would be supplied to gifted children as the need arose and that as these needs changed so too would the instructional approach change. This implied a a dynamic view of the nature of giftedness. In general most of the responding teachers and parent-

teachers took this view. Parental views were more spread out although most agreed with the teachers.

The third contrast asked if giftedness was best defined quantitatively or qualitatively. While a strong minority of 30% took the more traditional quantitative approach (e.g. top 4%), almost half of the respondents accept a qualitative view that gifted people have distinctive characteristics. In anticipation of this result, the sample was asked to indicate what these distinctive characteristics were in Section II of the questionnaire. As will be seen, those results showed that there is little agreement on what those distinctive characteristics really are.

Put together the consensus is that giftedness is dynamic, flexible, multifaceted but distinctive. It is a fuzzy concept that points in many directions some of which may be mutually contradictory. It makes programming difficult, yet it embodies a view of every student being unique and that the best educational system is one that builds from an assumption of individual strengths and weaknesses rather than common traits.

Many parents wrote comments which amplified their responses on the nature of giftedness. Often they pointed out that the various characteristics listed in the multifaceted position could be present to a greater or lesser extent. In particular, personality traits such as sensitivity, persistence and confidence may not be present. Some parents noted that the environment and social factors can accentuate or attenuate these features so it is difficult to determine what is inherent and what is a result of home, school and peer relations.

In addition to making comments like these, teachers pointed out that the multifaceted nature of giftedness is something that needs to be nurtured in students. The potential is there but it does not evolve automatically. The version of giftedness that includes personality and social traits is an ideal position or goal to be sought after. The teachers also noted that such a goal is not easily attainable. Both parents and teachers said as well (and with emphasis in some cases) that the personality and social features are not exclusive to gifted children. Moreover, children whether gifted or not need to be taught and guided in ways that enhance their growth.

The next four contrasts were directed toward the programs themselves. Parents and teachers differed in their views of programming and teaching requirements. Over 50% of the parents said that gifted children need special programs and facilities and that these programs would not be suitable for regular students. As expected, parents of GATE students felt more strongly about this than other parents. Teachers in contrast tended to see gifted education as "quality education" that many students from regular classes could benefit from. In commenting on the issue, some teachers did point out that there are a

few gifted students who seem to be more successful in a special setting. Other teachers said that programs must be defined to fit indiviudals and these can be incorporated into the regular setting. Parents made a variety of interesting observations that illuminated their views on special programs. One respondent said that special programs are "... likely to be the belief of elitist, egotripping parents of 'gifted' children who perhaps have a political bias." Another parent said that the special programs position smacked of "Nazism." On the other hand, two parents said that "... we must at least invest in quality education for those who will provide society with the greatest return - the gifted," and "... Nowadays most people seem to think that we can afford many times more of our resources on the disadvantaged than on the gifted. Yet the gifted are our future leaders." At a less intense level, several parents described the complexity of the problem of delivering programs in different circumstances. Pacing, challenge and social interactions are only some of the variables that influence the learning of gifted children and it may be more tractable to design programs in special settings than in regular schools. Finally, several parents took issue with the phrase in the contrast that said that programs for the gifted must be "visibly different." They argued in a convincing fashion that to prevent the students from being isolated psychologically, such programs must be "regularized" so that they are different without appearing to be so.

Opinions on the need for special training for teachers were divided. Almost 2/3 of the parents thought special training was needed, whereas only 1/4 of the teachers agreed. In commenting on their responses, parents said <u>both</u> training and other attributes were necessary. Three parents suggested that teachers of gifted students should be gifted themselves. Teachers pointed to the need for more and better workshops and in-service opportunities.

The respondents were asked to examine propositions that gifted education is education for the elite vs. a democratic way of providing opportunities for a well defined group of students. As expected 90% supported the latter view. Several parents noted that this was apparently a critical issue in the deliberations among trustees. Some noted that gifted education is analagous to deaf education or special provision for students with learning disabilities. Interestingly enough if this analogy is pursued it leads to contradictions. The current pressure in special education for handicapped students is normalization and integration. In gifted education there is much pressure in the reverse direction. The reasons for this point to the fundamental distinction between handicapped and gifted children. When two groups of unequal ability are placed together, it is assumed that an advantage accrues to the lower ability group. So placing handicapped children in regular classes is thought to enhance their opportunities. Using the same reasoning,

taking the gifted away from the regular setting would reduce the educational benefits for regular students. The roles of segregation and integration are quite different for the two groups and the analogy that many parents use that gifted students are like students with handicaps may be counterproductive in the current climate. This analysis may be simplistic, but it does illustrate the complexity of the social-political arguments that surround decisions about gifted education.

When asked about the teaching approach that would be best for gifted students (laissez-faire vs. more directive), all groups sided with the more directive approach, but many commented that the most appropriate way was to fit the approach to instruction to the student and the task. Some children need a lot of structure at certain times in their lives while others do not. It is up to the teacher to match the approach to the needs.

The final question in this section dealt with the evaluation of gifted programs. Should demonstrable achievement be at the centre of evaluation or are the critical results (flexibility, creativity, approach to learning) too difficult to measure? The responses were spread out across the continuum with a tendency to prefer the former view. Many parents pointed cut that as students go on to secondary school and to post secondary education, examinations are an important component and so they need to be prepared. Also, they need to know how they are progressing in their current program. However as one parent put it, "The best judges are the children themselves. If they are happy in school, getting the challenge they thrive on, the program must be doing something right." Related to that thought is the view supported by many that achievement as measured by tests should not be the only criterion either for evaluating students or the program. Other variables like self esteem, enjoyment and social skills are important too.

Characteristics of Gifted Students

In this section, respondents were asked to examine various characteristics and indicate the proportions of gifted and regular students that possessed the trait. When they rated the regular students more than one half of the teachers and parents said that between 25% and 75% of regular students possessed each of the traits. This established a common base against which the responses about gifted students can be assessed.

If you begin by considering the proportion of people who responded "VH - very high (more than 95% of gifted children possess the characteristic)", you find that Advanced vocabulary is seen as a definitive characteristic by 54% of the respondents. Able to think abstractly and Questioning attitude were next highest (49% and 48%), and

then Keen powers of observation, Vivid imagination, and Strong memory for details followed at 40 to 45%.

The list of characteristics was taken from background materials provided by EASG and it is surprising how few were seen as definitive. In considering the remaining scales, the results were cumulated in each scale until a majority position was reached (i.e. more than one half of the respondents). This is position is also the median response level for the scale. Since all of the scales for regular students had a median rating of M, it was easy to find all of the characteristics that did not discriminate between gifted students and regular students.

In addition to the six traits listed above, 12 more traits were judged to be slightly more characteristic of gifted students than regular students. These were:

Interested in complex problems	Can produce many ideas
Able to influence others	Can work independently
Well-developed sense of humour	Uninhibited in giving opinions
Energetic	High achievement in all areas
Intellectual risk taker	Reads voraciously
Enjoys mathematics	Enjoys working alone

Fourteen traits were judged to be equally distributed among gifted and regular students. These were:

Tolerance for ambiguity	Sensitivity to others
High self confidence	Does not fear being different
Works persistently	Excellent social skills
High self esteem	Makes friends easily
Adapts to new situations	Is accepted by others
Excellent physical skills	Patient in approach to tasks
Is sensitive to beauty	Accepts disorder

One trait, Tolerance for boredom, was rated as being less common in gifted students than in regular students.

The results of this section confirm the results of the previous section in pointing out how complex the concept of giftedness is, but at the core, the main traits are tied to intelligence and approach to learning. Social and personality traits are thought to be found in gifted students with about the same regularity as with other students. If this is so, it is difficult to understand the views that are expressed by some that future leaders

will come from this the gifted population. For the majority of respondents, the distribution of leadership skills would seem to relatively independent of giftedness.

Evaluation of the Gifted Programs

In the final section, respondents were asked to rate the performance of programs as strong, adequate or weak. Eight questions were asked which tried to capture the spirit (if not the wording) of the comprehensive plan. For most of the characteristics, about 20% of the parents gave a "Strong" performance rating. There was a tendency for parents of students with Oakley/GATE experience to give higher ratings than parents with children in other settings. Over 40% of the parents gave "Weak" ratings to three crticial features: "Programs are designed to fit the needs of individual students," "Practices are in place to meet the social and emotional needs of individual students," and the global category, "Generally speaking gifted and talented students are thriving under the educational programs that are provided."

Almost 50% of the teachers agreed that serving emotional needs was an area of weakness, but fewer than 20% assigned a "Weak" rating to the global evaluative statement. Consistent with this was the "Adequate" rating given to the way that programs fit the needs of individual students.

"Adequate" or "Strong" ratings were given by the majority of parents and teachers for the identification and monitoring functions. "Provisions for recognizing excellence" received a rating of "adequate" or above from 2/3 of the parents and about 1/2 of the teachers. The questions on setting of objectives and on the distinctive nature of the programs for gifted students received a mixed reaction.

The picture that emerges is that a few parents and teachers feel that the programs and services are strong, but most see tham as at least adequate. Given the uncertainty of budget and resources perhaps this is sufficient. One the other hand there is a substantial minority of about 1/3 of the parents and 1/5 of the teachers who think that the performance is weak. These tend to be pepole who serve in or are served by programs in the regular school setting.

Many (perhaps most) of the parents commented here and elsewhere of school performance. Favourable comments generally related to the work of particular teachers or principals. It is clear that individuals in the system are making a difference. Critical comments were of two sorts: general - "there is no attempt being made to help gifted children," or, "there are not enough resources to do an adequate job," and specific. The general comments emphasize the global ratings, but the specific comments are directed to topics that are not covered. For example, many parents pointed to poor communication

between the school and home. Some felt that they had to initiate the process that led to special programming for their children. Others said that there seemed to be little or no information passing from one teacher to the next. A few parents described specific problems that their children were encountering which could easily have been solved by a responsive, communicative school.

A more difficult specific problem that was raised by a few parents was the low level of art and music programs that were presented in their schools. In light of the evidence to be presented in the next chapter, this was a bit surprising, but it likely means that the strong programs observed in a few schools are not duplicated throughout the system. Excellent fine arts programs take time to develop and are usually found where the school administration supports a particularly effective staff member. There may not be enough of the excellent people to go around. Perhaps more open boundaries might provide some answers.

Teachers who commented on this section indicated that most of the problems were tied to time, resources, training and leadership. They needed more time to be able to individualize programs, more resources to capture that time, better training through in-service workshops, and stronger leadership so that the thrust would move from within the classroom to become a feature of the school.

The final part of the questionnaire sought information on the impact of reorganization of programming for gifted and talented children. Some people responded to this issue directly,while others used it as an opportunity to make general comments. Of the teachers who responded to the question, 46 indicated that the withdrawal of EASG had hurt the delivery of services to gifted and talented students. They said that the loss of resource materials, instructional advice and general encouragement and stimulation had thrown everything back onto an already overburdened teacher. Resources within the school tended to be directed to students with learning problems with the consequence that where enrichment activities occurred, they were the responsibility of the classroom teacher.

Eight teachers said that reorganization had no impact on their teaching and two thought that the impact might have been positive. A further eight teachers did not address the change issue directly but made more general comments on where gifted education should be located. Most of this group thought that the integrated setting was preferable to a congregated setting.

In the small group of teacher parents, eleven felt that the change was detrimental, three said that there wasn't much difference because nothing had been done before, and one indicated that the change was for the better. Three people in the group

preferred the Oakley program to the GATE program. They said that the multiprogram nature of Queen Elizabeth took away from the coherence and spirit that existed at Oakley.

The parent repondents were divided into four groups - those with neither Oakley nor GATE experience, those with Oakley experience, those with GATE experience, and those with both Oakley and GATE experience. There were 60 parents from the first group who made written responses. Twenty-one of these said that there wasn't much difference because so little was being provided before. Seven more indicated that the level was about the same. Several indicated that successful program delivery in a regular setting depended upon individual teachers. Other parents said that they tried to provide their children with enrichment through hobbies and outside lessons. French immersion was mentioned as a way of challenging gifted students. Finally six of these people specifically mentioned the need for strong programs in neighbourhood schools.

The responses from the eight people with Oakley experience noted the demise of the program with regret. Some argued that the decision was politically motivated.

The 35 parents with Oakley and GATE experience mentioned a variety of changes. The negative changes were: the reduction in number of extended options available, the reduction in personal attention and guidance, and the mixing of gifted students with other students at Queen Elizabeth. It is interesting that the latter change was also listed as a positive consequence of the shift! In addition, some parents liked the GATE program better, found the teachers more enthusiastic, liked the strong fine arts offerings, thought the program had more stability and were happier with a selection process that tended to exclude disruptive children. Many felt that smaller classes would be better. Others noted that the GATE program tended to favor the achieving gifted and overlooked the underachieving gifted students.

Of the 36 parents having experience with GATE and regular programs, 15 gave positive assessments. Many expressed specific appreciation for the work that was being done with their child. Most of the remaining respondents spoke of the need to extend programs for gifted students and to stop the deterioration of existing programs. There was one negative letter from a parent of a student who had been in the GATE program in grade 9 who felt that the program had failed her child completely.

Reflections on the Questionnaire Results

There were many impressions gained from the results of the questionaire that came not only from the numbers and ratings but also from the tone and feeling of comments. First of all, for people who are involved either as parents or teachers, this is clearly a value laden area. Not only was the response rate high, the proportion of people

who took the time to write extended, thoughtful comments was unusual. Several respondents wrote pages outlining the history of their children's involvement, and making suggestions for improvement. It is difficult to do justice to the variety and quality of the responses.

Both parents and teachers have diverse views on the nature of giftedness and the necessary components of gifted education. Partly this arises from the natural diversity that is found among the gifts of individual students. Partly it derives from the diversity of values and expectations held by parents. It is clear that a single approach to gifted education that would satisfy a large majority of parents and teachers would essentially be a collection of platitudes about good teaching, attendence to individual differences, and more resources. In fact these are needed, but they are needed in a specific context and it is the way in which they are operationalized that leads to problems.

There is a compelling case to be made for both congregated and integrated settings, but these broad classes are not sifficient. There is a difference in philosophy between Oakley and GATE, and a few children seemed to fit into one better than the other. There is no doubt in my mind that the question of which approach is better is largely irrelevent in this case. They each satisfied parent-student populations that are slightly different. The same thing holds true for integrated settings. While some make no attempt to serve gifted and talented students others have a complex of programs and services. Some stress personal growth and development, others provide significant enrichment, while others encourage the use of gifts and talents in regular settings in non-trivial ways. To a large extent the kind of services provided depend upon the principal and the talents of the teachers.

It seems to me that successful programs for gifted education will provide alternatives so that students (and their parents) can find a place that best suits their needs within a practical context. The diversity of talent in teachers, the make-up of the community and the individual talents and needs of the children will mean that conditions must trade-off. Complete attention to individual differences in a single school is simply unrealistic (perhaps even undesireable), and principals and their teachers must examine how a program is to be developed within the context of their own conditions. Parents on their part need to be able to influence these directions, but have the freedom and encouragement to seek different schools if their children are not being well accommodated.

I am struck by the need for strong leadership. Individual teachers make a difference, but the child benefits most when the talents of the entire staff are forged into an approach to education that can be communicated to the outside. This integration is the

responsibility of the principal. In the next chapter the results of visits to classes in five schools will be described to show how school philosophy influences gifted education.

Chapter 4

School Visits

Introduction

During the winter of 1988-89 visits were made to the GATE classes at Queen Elizabeth School. From these visits, it was clear that GATE is an excellent example of gifted education in a congregated setting. To develop a sense of successful gifted education in an integrated setting, officials were asked for the names of schools that have successful programs. Louis Riel, R.T.Alderman, Bishop Pinkham, and Marion Carson were suggested because they are known as having different but exemplary approaches to gifted education. These schools were visited and although the format of the visit varied from school to school, through interviews and observations it was possible to establish some of the common and unique practices associated with the identification and education of their gifted and talented students. Based on the information collected, it seems clear that my request for schools with successful, integrated programs had been met because all were impressive. Rather than talking about each school in turn, I have listed a number of focal points around which questions of gifted education cluster. The time spent in Queen Elizabeth was much greater then in the other schools, but since it is the only congregated setting, it seemed a reasonable allocation. Occasionally reference is made to Oakley Centre where the approach to gifted education in a congregated setting had some features that were distinct from the GATE approach.

Leadership and School Philosophy

It is clear that each of the schools has a distinct, supportable, consistent and workable approach to the education of gifted students. Common themes such as responsibility, communication, enrichment, diversity and kindness were found in all schools, but each approached the task with an emphasis that related to the surrounding circumstances. For example, GATE exists as a school within a school, so it must address the issues of cooperation with other programs while retaining the integrity of its own activities. Beyond the development of the program itself, selection and monitoring are important parts of the GATE program. In addition, they must deal with a legacy of controversy and uncertainty. In this context, the school and program administrators have mapped out a clear philosophical direction that allows parents to understand what the program can and cannot do. The most obvious focus is on individual intellectual and social development. In contrast, the first impression of the focus at Oakley Centre was on enhancing student self concept and personal development. This is not to say that in

either location other aspects were ignored, rather it points to a different order of items on the school's agenda.

At other schools, different tasks are prominent. In one school, communication was seen as a weakness, and so the principal and staff have focussed on improving the communication between the home and the school. Tours are encouraged, interim reports on student progress are issued, and newsletters are sent home. The feature of communication that is most related to the activities for gifted and talented students has been the special attention that teachers now pay to what is being done for the students, and what the results are. In the past when parents asked about what was being done for a child, the answers were vague---the child is getting enrichment. Now the parent is shown exactly what is being done, how the expectations may differ from one child to another, and how the child is performing.

At another school, many of the junior high school students who are gifted seem to have difficulty coming to terms with their gifts and talents. Here the program has built its enrichment activities on a base of personal and social development. It is important to note that this approach is quite different from the GATE approach, but both appear to be based on the needs of current students.

At other schools, special provision is made for students whose talents are well beyond those of their bright classmates. Talking to these students gives the impression that they are being challenged, but they are also engaged in valued social relations with their classes. Teachers and principals have arranged to give these students sound, guided enrichment while at the same integrating them into the ongoing activities of the school. Within the regular classes, skilled teachers seem to be able to reinforce effort and excellence at the same time.

Some schools use a lot of parent volunteers to support their programs. Others insist that no parent should do a job for which a student could volunteer. Taking on these tasks is seen as being part of learning adult responsibility.

There is a common view in all five schools that the students don't need more homework, they need to be encouraged to take control of their own education. With this in mind, staff members try to provide meaningful enrichment opportunities rather than "more and more of more and more." The student products that are on display provide an impressive testimony to the general success of this approach.

Each of the five schools has its own "personality" partly dictated by the programs and populations served and partly determined by the individual skills of the principals and teachers. In each situation, the approach to education can be clearly articulated and one suspects the practice is consistent. These are schools and programs that are not

vague. They have direction and they are student centred. There is a sense of flexibility and an obvious desired to improve. The leadership is "hands on." In summary, the first characteristic of a successful program for gifted students whether it is in a congregated or integrated setting is strong leadership and a well-defined view of the task.

Students

The second feature of all programs and all schools is a recognition that whether they are gifted or not, "kids are kids." It is important to remember that in the first instance they are not gifted, or artistic, or bilingual, they are people with different personalities, backgrounds, goals, and desires. Many of the students have very full lives with sports, lessons, clubs, and other activities. They are very busy people, and the skilled teachers recognize this in their attempts to push them without hounding them. There are relatively few gifted students for whom scholarship is the central guiding force.

In spite of the general picture of gifted students being very much like other students in terms of their personalities and social skills, there is a subgroup that merits closer examination. For these students, gifts and talents can be a problem not a benefit. Disruptive behavior in class which is brought about by boredom or by trying to gain some status from peers is not uncommon among boys. Withdrawal and denial of ability occurs especially with some girls. Occasionally, students who are very bright become interested in a particular area, and this intense interest interacts with some social immaturity to produce a sense of isolation which in turn retards social development. These problems can be ameliorated through special efforts within the gifted program, and the various venues seem to deal with them different ways, but all appear to be effective. The very small group of students who have serious emotional problems and who also happen to be gifted, can not be helped through attendance in gifted programs either in the integrated setting or the congregated setting. These students require therapy.

Programming

The five schools have developed programs to fit the needs of the students that they serve. Generally there is a distinction made between elementary and secondary students. At the GATE program, elementary students are organized into multi-aged clusters or families. This allows the teachers to accelerate and enrich the progress of individuals by having them work by themselves, or with older or younger students. Many classes are

taught by a team of two teachers and the blend of individual assistance, independent problem solving, and group instruction is producing a strong instructional effort.

At another elementary school, students may be moved into a higher grade for arithmetic instruction, but work with age peers in language arts. In one case a young girl works under the individual guidance of the teacher dealing with the same broad topics as the other children, but working at a much more demanding level. It all happens in the same class, so that she can chat with her classmates, but the research and writing assignments are very different.

Some schools make use of "pull out" programs in which students attend a few sessions in a week with their gifted peers. Teachers and principals indicated that such arrangements have advantages and disadvantages. Because it is distinct from the usual activities, the pull out seems most effective for the social-affective dimensions. In one school, the program begins with helping young adolescents to deal with their gifts and talents and then gradually introduces work on advanced projects in the natural sciences and the humanities. Two teachers work with the cadre of gifted students as resource people for the pull out program, but also as general faculty advisor/consultants.

Another aspect of the programs that is worthy of mention is the importance that is placed on the field trip for junior high school students. At all schools these appear to be an essential component of personal and social development. Much effort goes into them, and the staff deserves a great deal of credit for the time that is spent in arranging the trips and making them such successful learning experiences.

Of course the formal aspects of gifted education in the humanities, sciences and mathematics are not neglected. It is here that the creative teacher makes the whole program work. Conversations with teachers in all settings revealed that they had well defined approaches to the education of gifted and talented students. Each could speak specifically on the progress of the various students in the class. The goals were set, and the demands were high, yet in the classes that I observed there was an air of mutual enjoyment.

On a different front, it must be noted that French immersion programs are having an influence on programs for gifted and talented students. The French programs tend to be popular with girls, and this contributes to the imbalance between the sexes in the gifted programs. If the immersion programs continue to grow, there may be some impact on the pool of candidates available for the congregated setting.

Selection and Monitoring

Selecting students and monitoring their progress had a prominent position in the Comprehensive Plan. It was hoped that all gifted and talented students could be identified as early as possible and a specific plan could be produced for each child. Identification based on the multifaceted nature of giftedness that is held by most people is a very expensive process. Because GATE resources are limited an admission process is necessary. Clear guidelines have been established and seem to be working. An important component of the process is the communication that goes on between GATE and the sending school, and between GATE and the parents of prospective students. Since the congregated setting was placed in Queen Elizabeth School, much effort has been devoted to explicating the program so that now parents and cooperating schools can have a well defined idea of what is going to occur. As part of the process, parents tour the school, talk to teachers and see classes in action. This helps them to decide if GATE is the appropriate place for their child.

In other schools, classroom performance and standardized test results are used to flag children who are gifted or talented. In some schools the proportion of bright students is very high. Here the concern is less with identifying the gifted, and more with locating underachievers. This turns out to be a particular problem as students move from elementary to junior high school and appropriate study skills become necessary. In this school, programs have been put in place help the students develop mature work habits. The School Resource Group develops plans and monitors the results. In another school, monitoring is less formal but is effective because gifted students are the responsibility of the teacher advisors.

The "gain plans" that were proposed for use with all gifted and talented students in earlier days never caught on at the classroom level because they were too detailed to fit the ongoing rush of events. However there is validity to the underlying notion that if we are to have programs for gifted and talented students then somewhere it must be spelled out what is going to be done, who is going to do it, and when it will be done. Monitoring can have many faces, and schools must develop procedures that fit their requirements. From time to time it is important to confirm that the monitoring procedures are leading to action, but it seems expensive and perhaps not very functional to impose a centralized system.

Selection or identification may still be a problem in some areas of the city, but several strategies can be employed. Well-informed parents and the regular testing program can both be used to find potential candidates for programs.

The Importance of the Arts

In all schools and particularly at the upper elementary and junior high schools, the arts have an important place in the ongoing program of the school. It is immediately obvious from watching classes that art, music (both choral and instrumental), dance and drama provide important vehicles both for the development of specific talents and for personal development as well. Without actually seeing it, it is difficult to believe the high level of talent that exists in these schools.

It is clearly an advantage to have a school that is large enough that it can retain programs in several areas. In some cases the arts are an outlet for another talent (electronics, writing, etc.) , and this must reinforce the basic subjects both for the individual and for his or her classmates. One of the great benefits of moving GATE to Queen Elizabeth has been the opportunity to provide upwardly integrated programs in the Arts. Because of the high school presence a stable base for these programs is in place and it has been accomplished without much in the way of special funding. In a small school of 250 students it would be very difficult to support offerings in dance, drama, band, and choir. Size has also been a factor at Bishop Pinkham where a strong program in the arts benefits not only students with talents in the areas, but others as well.

EASG

Principals and teachers were asked to speak about the effects of losing the EASG resources. The bipolarity was obvious. Two of the schools made great use of personnel and materials supplied by EASG and the loss was important. One of these is fortunate in having "captured" a resource person from the EASG staff, and she provides an outstanding service to the students and teachers in her school. EASG helped the other staff in a significant fashion a few years ago and this has allowed them to deliver a good program now. The other two schools made little use of the service. The GATE program began as EASG was being dismantled so there was no direct relationship although there are two former EASG teachers on the GATE staff.

Overall, the loss in materials and expertise has been felt. Usage was not uniform across the system. There may have been more use made by elementary school teachers than junior high teachers, and so the consequences may be greater for the younger students.

Summary

The school visits confirmed a number of impressions that had been gained from earlier work. There are many ways in which effective programs for educating gifted and

talented students can be manifested. But there appear to be some common themes:

1. Effective programs are a team effort with effective leaders and highly competent teachers working together.

2. The team seems to have a clear "mission" or philosophical basis.

3. They adjust to their clientele.

4. They are critical of their own efforts and seek opportunities for improvement.

5. They are proud of what they do and are confident in showing it off.

6. They have a great respect for the variability of human traits. Where some see commonality, they see individuality.

Chapter 5

Observations and Suggestions

Three years ago a proposal for a research project was presented to the Calgary Board of Education. The proposal that was approved envisaged a three year longitudinal project concerned with "evaluation of congregated and integrated program and service benefits of students assessed as gifted and talented." Much has happened since then and the study evolved to fit the changing circumstances. At this point it is useful to reexamine the questions that formed the basis of the study.

A. Questions concerning the philosophy of Student Services as it relates to meeting the needs of gifted and talented students.

1. Is the philosophy understood and supported by all stakeholder groups? On balance, there seems to be surprisingly widespread agreement on the philosophy at a general level.

2. Has the philosophy been transformed into a useful workable plan? The answer is, "Not entirely," but individual schools, including the congregated setting, are well on their way. The philosophy has sufficient scope for growth that no one will ever be completely satisfied.

3. How does the philosophy and plan compare with those selected by other jurisdictions? Last year's report showed that it is better, but it is harder to achieve.

4. Are other school jurisdictions experiencing success and/or encountering problems? The unique history behind the Calgary experiment has made it a much more complex situation. Other school jurisdictions have problems and successes, but there is less intensity in the discussions.

5. Is the definition of gifted and talented useful and workable? In one sense it is because the definition in operation (in contrast to the formal definition) can mean virtually anything to anyone.

6. Is there consistency between the definition, identification and program and services offered? Probably not. There are very few formally identified talented students, and many of the gifted students who are identified choose not to make use of specialized services.

B. The screening, identification and referral of students.

1. Are the procedures consistent with acknowledged criteria? The procedures that are in place are not inconsistent.

2. Are the procedures consistently applied throughout the system? No, some schools pay great attention to identification, others do not.

3. Is it clear who will do what and when and how? This depends on the school.

4. Do instruments and procedures used require further evaluation? I think that this is not a major issue. The existing district testing program coupled with teacher and parent observation is probably a cost effective initial screen.

C. Administration, development and delivery of programs and services.

1 Is the administrative structure for the development and delivery of programs and services for gifted and talented students workable for all schools and settings? No. The structure now resides almost completely within the schools. Some principal/teacher teams have the capacity to do this, others likely do not.

2. Are there unique provisions that must be made for developing, deciding and implementing curricula or program modfications for gifted and talented students? This depends on your philosophical orientation and how "unique" the provision must be. For some teachers and parents the answer is a clear yes. For others it is no.

3. What provisions are necessary in terms of personnel, resources and finances? In a jurisdiction of this size, a congregated setting is an appropriate way of dealing with a significant group of students. Encouragement of schools to develop programs of excellence, and having more permeable boundaries so that students with special gifts and talents could have better access to top programs would go a long way to improving the situation.

4. Are there discrepencies within the spectrum of programs and services that would indicate poor alignment between theory (what should be) and practice(what is)? These discrepencies are undoubtedly there, but the important discrepencies are between what parents want and what they think that their child is receiving. Communication must be improved. I suspect that a lot of very appropriately aligned programs are not being given the credit that they deserve simply because they haven't been described precisely.

5. What are the types of learning needs and educational benefits that are best accommodated by the different instructional settings (integrated, partially integrated or congregated)? The needs and benefits for the congregated setting have been spelled out in many documents.The integrated setting can provide quality education in the neighbourhood. For students who have a busy life outside the school, this can be a strong

inducement to stay in their own neighbourhood. But the key factor in the integrated setting is not so much the structural arrangement, as the strength of the teaching staff.

6. Are different types of learning needs currently being accommodated within the different instructional settings? Are the educational benefits being realized within the different instructional settings? The most that can be said here is that this is happening in some settings. Feedback from parents and teachers suggests that it is not happening everywhere.

7. Are there limitations (e.g. age, grade, length of time to be in the program) that should be articulated before implementing programs and services? No. Situations change too rapidly to make this a productive activity. Schools need to be encouraged to get out and develop their own approaches and then improve on them.

8. What is the role and benefits of a resource centre for gifted and talented students? It would be used differentially. Those who used it would derive great benefit. Those who didn't, may not notice it. It really depends on the directions that a particular school takes.

9. Are there appropriate procedures in place that enable the tracking of students before/during/after Oakley Centre (GATE) and other instructional settings? Yes and no. The GATE procedures seem appropriate. Experience with other schools indicates that there is great variability in the level of formality. Generally, the "during" procedures seem to be appropriate. On the basis of no evidence I doubt that the "after" procedures are very much in place, especially between junior high and high school. Of course this boundary is not as disruptive for students who stay in Queen Elizabeth.

D. Selection and placement of teachers.

1. What procedures are used to select and place teachers? The GATE team is developing well. Placement of critical people (e.g. specialists in the arts) seems very dependent on the vagueries of student migration and budget.

2. Are unique qualifications required for different instructional settings? If you are going to have a congregated setting, then you must have people with the training and experience who can make it work. On the whole this is developing very well.

3. How are teacher shortages overcome? People work harder. Students get less personal attention. This is the same for all programs.

E. The relationship between costs and educational benefits

1. What are the costs of the educational benefits of integrated, partially integrated and congregated settings? The big cost of the congregated setting is the amount

of time that students spend travelling. The benefits that accrue to the students can be substantial.

2. What are the costs and educational benefits associated with expanding congregated programs and services to students (e.g. one day per week)? There would be significant benefits to elementary school children if they had a congregated setting closer to home. These settings would not be "stand alone," but would be located within other schools. There are many successful examples of schools within schools, and to offer strong arts programs, you simply need a lot of students. I doubt that if implemented, that the costs would be much greater than current costs. The one great disadvantage is that the grade 3 to 12 setting makes it very easy to provide enrichment and acceleration to the exceedingly bright student.

Suggestions

School visits, learning preference data, and SOLO writing results suggest that positive things are beginning to happen in the education of gifted and talented students. I am not convinced that a mathematical renaissance is taking place, but perhaps that will come with improvements in our Faculties of Education. Many gifted students are receiving a high quality distinctive program. Others are not. Of those who are not receiving a distinctive program, some are living happy, fulfilling lives. Our concern must be focussed on those gifted students whose needs are not being satisfied. Sensitive and alert teachers are our best instruments for finding these students. Strong school teams backed up by an effective congregated setting can provide an appropriate program.

There are schools who provide excellent instruction for gifted and talented students in a regular setting. These schools are large enough and have enough instructional talent to carry out the task. They should be encouraged to develop their own approaches and philosophies within the overall board policy. More importantly they should be encouraged to open their doors to students from outside. We cannot hope to provide a program that exactly fits each student, but if we increase the number of available alternatives from two (neighbourhood school or GATE) to several (a school with a strong music composition opportunity, a school that is excellent in computer science, a school that has a good drama and dance program, a school with strengths in gymnastics, a school that has French immersion and an excellent mathematics program.....) then surely more students will have a quality education. There are lots of reasons why this <u>won't</u> work, but the main reason for thinking that it can work is that I have seen schools in Calgary and elsewhere that are doing it. It requires strong

leadership and an enthusiastic and effective staff and it can be facilitated by sensitive and knowledgable consultants.

The second suggestion that I have is that schools must improve their communication in the area of gifted education. This includes communication among teachers, between teachers and parents and among schools. The first focus for improvement must be to increase specificity. What are we doing, why are we doing it, and how do we know if it is any good?

Tied to communication is the need to celebrate excellence. This occurs not only at festival times, but all of the time. The walls of the school board office should be covered with the products of our students - essays, paintings, poetry, science demonstrations, and even elegant mathematical solutions. We need to seek opportunities to show each other as well as the public that the things that our students do are significant.

Finally we need a time of stability so that the programs that are in place can consolidate their gains and begin to attack the problems that remain. I believe that success will grow from the bottom up, when schools - either congregated or integrated - develop strategies that fit the unique contingencies that exist between the backgrounds and needs of their clients and the talents of their staff in a climate of support and encouragement. Some resources may be needed, but the greater need is for communication, sharing, self monitoring, and leadership.

APPENDIX 1

SOURCE OF STUDENTS IN SAMPLES

Grade 5

School	GIA	Nominated	GATE
Chief Justice Milvain	1	5	
Sam Livingstone	2	1	
Louis Riel	2	0	
Sherwood	0	5	
Chinook Park	1	0	
William Reed	4	0	
Elbow Park	4	1	
Earl Grey	4	4	
North Haven	4	4	
Cedarbrae	3	6	
Canyon Meadows	3	5	
Elboya	2	6	
Queen Elizabeth	0	0	33
Total	32	37	33

Grade 6

School	GIA	Nominated	GATE
Chief Justice Milvain	1	7	
Sam Livingstone	5	4	
Queensland	3	4	
Louis Riel	5	8	
Sherwood	3	4	
Chinook Park	3	4	
Deer Run	2	10	
Dalhousie	4	1	
William Reid	3	4	
Elbow Park	8	0	
Queen Elizabeth	0	0	37
Total	37	46	37

Grade 8

School	GIA	Nominated	GATE
John Ware	5	4	
Rideau Park	2	3	
Branton	3	6	
Elboya	4	2	
Woodman	1	7	
Georges P. Vanier	5	4	
Bishop Pinkham	6	2	
Simon Fraser	2	8	
R.T. Alderman	9	2	
Queen Elizabeth	0	0	54
Total	37	38	54

Grade 9

School	GIA	Nominated	GATE
John Ware	0	7	
Rideau Park	4	6	
Branton	3	7	
Elboya	10	5	
Woodman	3	5	
Georges P. Vanier	3	5	
Bishop Pinkham	4	8	
Simon Fraser	5	3	
R.T. Alderman	10	1	
Queen Elizabeth	0	0	40
Total	42	44	40

APPENDIX 2

SOLO TASKS, SCORING KEYS AND EXAMPLES

Writing Tasks for Grades 5, 6, 8 and 9

Instructions:

In the following pages there are two problems. They involve thinking and writing. In the first problem, you will be asked to make a decision and give reasons for it, and in the second you will be asked for an opinion. Please write as clearly as possible. If you need more space, use the back of the page. When you have finished answering one question, you can go to the next one.

Problem 1

Pat is part of a community softball team and like the rest of the team, has gone to 3 practices a week for the last month to get ready for the league games. As the season begins, the team is doing very well, however, Pat does not get to play as much as some of the better players. Half-way into the softball season, soccer season starts, and the better players go to soccer practices rather than softball practices. However they come to play in the games and so Pat still doesn't get to play. One day in the last inning of a game in which Pat's team was winning by a large score, the coach told Pat to go in to bat. Pat was angry and said no. The coach then kicked Pat off the team for being uncooperative.

Suppose that you are in charge of all of the community teams, and the coach and Pat come to you to settle the dispute. What would your decision be? Why would you make that decision?

Problem 2

Exceptional students are students who have a special talent or problem. Some examples are blind children, very bright children, deaf children, very athletic children, retarded children, and artistic children. Some people think that there should be special schools for exceptional children. Other people think that it is better if all schools have children of all kinds.

There are many good reasons for holding one view or the other. Explain your position on this issue.

Prestructural response Gives an opinion without reason.

Example from Task 1. I would decide that Pat had a reason to be mad.

Unistructural response Chooses 1 side or the other and supports it unequivocally with a single argument or using one relevant aspect of evidence.

Example from Task 1. My decision would be for Pat because she was trying to play good during most of the season but the coach let the better players play the game instead of Pat. Even when the other players missed practices they got to play more, so Pat deserved to be angry.

Multistructural response Chooses one side or the other but discusses the validity of the claims of each or gives multiple arguments in favor of one. Inconsistencies or conflicts are ignored or discounted.

Example from Task 2. I think that they should all be together because that ay they can learn from each other for example an athletic child could help a blind child play soccer and the blind child could help him understand what it is like to be blind.

Also if you always have handicapped people with handicapped people they may not learn how to relate to people without disabilities and vice versa.

Relational responses Notes the competing demands of the two sides and attempts to reconcile them. Conflicting data are placed in a system

that accounts for the given context.

Example from Task 2. I feel that there should be special schools for exceptional students. By having these schools, children will be able to work better in a situation that helps them to develop their talents or to cope with their handicaps. Many children can't work well in a regular classroom as they require special attention. It is also not a good idea to make children work at a higher or lower level of learning than they are capable of. It is better for other students in a regular class if exceptional students aren't there because they require the teacher's time. So to be entirely fair to the teacher, the classmates and the student, special schools should be provided for these exceptional students.

Extended abstract response Places the problem into a context and shows how it is an example of a more general case.

Example from Task 1. I would ask Pat to apologize to the coach for being rude. However after the superficial conflicts pertaining to this incident were resolved, attention would have to be drawn to the greater problem. The first thing that I would do would be to ensure that there was a higher league for better players. This way the difference in skill between players would not be that great. Next I'd establish a minimum number of times to bat every player must receive and a maximum for every player. Obviously I would first have to do some research to find out what these limits should be. This way, weak players such as Pat would receive some times to bat and very good players couldn't always be at bat.

Instructions for all grades

In the following pages there are some arithmetic problems. They are a little different than the usual kind of arithmetic problem, because in these problems there are many ways to be correct. Sometimes you will be asked to give your opinion. When you give an opinion, try to be as clear about it as possible.

Instructions for all grades

Problems for Grades 8 and 9

Question 1

A farmer comes to you with the following problem: He has enough wire and posts to build 1000 metres of fence. He wants to use the fence to enclose part of a very large field so that his cattle can graze on it. Each animal eats about 2 square metres of grass in a day. Every 10 days, the grass grows enough so that it can be eaten again. How many days can he keep the animals in the enclosure before they run out of food?

The farmer doesn't need an exact answer to his problem, but he would like some advice on how to figure out the answer approximately. So far he has not given you enough information to solve the problem. What else would you need to know in order to give him some advice?

Even if you had all of the information, there are several ways to get an approximate answer. How would you do it?

Prestructural response No apparent strategy.

Unistructural response Picks a single feature of the problem, e.g.assumes a specific area for the field, and treats the number

of cattle as an unknown. Ignores the growth of grass.

Multistructural response Considers the two factors of size and growth independently, e.g. assumes a size, and then treats growth as an afterthought.

Relational response Solves the problem for above and below the boundry values for an assumed value for the area.

Extended abstract responseNotes that area is not determined by perimeter and solves problem for any area in general.

Question 2

Jane and her 5 friends buy a pizza. Unfortunately the pizza is not cut into pieces. The 6 girls have a special machine that will cut anything in half. How can they use the machine to share the pizza as fairly as possible. Use a diagram to help you to explain your answer.

Prestructural response No answer, or answer unrelated to problem.

Unistructural response Pizza is cut into 6 pieces without regard to machine constraints. Or uses machine to cut pizza into 6 unequal pieces.

Multistructural response Makes equal pieces and solves problem by discarding, or uses 6 equal pieces and small unequal pieces.

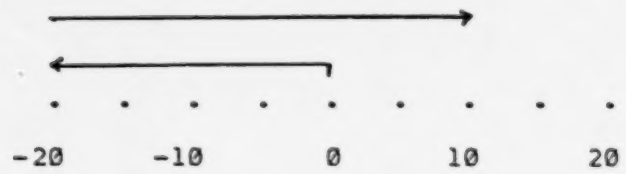
Relational response Solves problem by cutting into very small slices and produces equal results for all practical purposes. Recognizes the impossibility of the problem but doesn't show why it is impossible.

Extended abstract response Gives a solution to the problem, and shows why problems of this type are unsolvable. (e.g. 6*k can not

equal 2*n when k and n are integers).

Question 3

The diagram below was used to illustrate a problem in an arithmetic book. Explain the kind of problem that it would be useful for solving.



Unistructural response No recogniizable structure, or vague response, e.g. It's a problem with integers.

Unistructural response Gives a single example without explanation. May give a single example: 0-20+30=10

Multistructural response Gives two or more examples, e.g. 0-20+30=10, and 0+(-20)+30=10.

Relational response Gives examples and explanations that relate numbers and arrows to features in the example.

Extended abstract Notes that directions and positions of arrows are ways of dealing with mathematical concepts.

Problems for grades 5 and 6

Question 1

Lori's lucky number is 3. Make up five arithmetic word problems in which the answer is 3. Make the problems as different from each other as you can.

Prestructural response Gives an answer that is not related to the problem.

Unistructural response All problems are of integer form using a single operator e.g. __+__=__

Multistructural response At least two different operators are used to produce the word problem.

Relational response At least one word problem involves two related stages.

Extended abstract Indication that a generating function can be used to produce an infinite number of problems.

Question 2

Question 2 consists of three parts. Answer Problems A and B, and then answer Problem C.

Problem A

Janice and her 2 friends buy a pizza. Unfortunately the pizza is not cut into pieces. The 3 girls have a special machine that will cut anything in half. How can they use the machine to share the pizza as fairly as possible. Use a diagram to illustrate your answer.

Problem B

Robert and his 3 friends buy a pizza. Unfortunately the pizza is not cut into pieces. The 4 boys have a special machine that will cut anything in half. How can they use the machine to

share the pizza as fairly as possible. Use a diagram to illustrate your answer.

Problem C

How are problems A and B different?

Prestructural response Ignores problem C.

Unistructural response Ignores the machine requirements, cuts pizzas and then sees the difference as being one of number of pizzas.

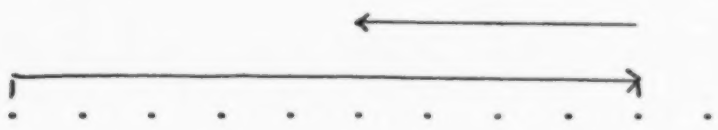
Multistructural response Makes equal pieces and solves problem by discarding, or makes unequal sized pieces, recognizes it but doesn't do anything about it. Sees difference in problems as being one of number of pieces.

Relational response Produces equal results for all practical purposes. Sees one problem as harder than the other, with the difficulty related to the number of people. May speak of the certainty of a fair solution in the two cases.

Extended abstract Sees the difference in terms of the impossibility of producing three pieces by cutting in half.

Question 3

The diagram shown below was used to illustrate a problem in an arithmetic book. Describe the kind of problem that it would be useful for solving. Be sure to explain your answer.



Prestructural response Response unrelated to problem.

Unistructural response Refers to one arrow, may be a single example without explanation using specific values.

Multistructural response Gives two or more examples with different values. Or the two arrows are treated separately.

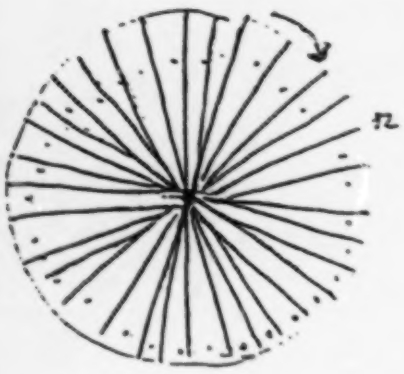
Relational response Sows how examples relate to each other and to the diagram.

Extended abstract Uses examples to shows how the diagram relates to problems of a particular form.

Prestructural Response to Task 1

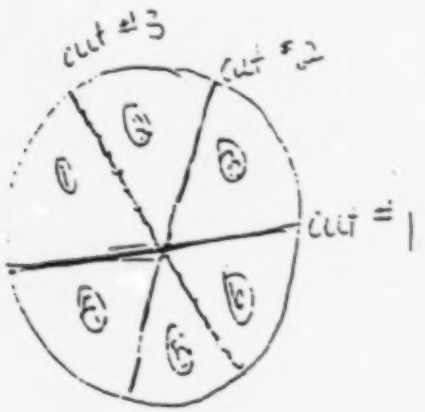
Jane and her 5 friends buy a pizza. Unfortunately the pizza is not cut into pieces. The 6 girls have a special machine that will cut anything in half. How can they use the machine to share the pizza as fairly as possible? Use a diagram to help you to explain your answer.

Prestructural Response to Task 1



I don't Know!

Unistructural Response to Task 1



Multistructural Response to Task 2

A farmer comes to you with the following problem:
He has enough wire and posts to build 1000 metres of fence. He wants to use the fence to enclose part of a very large field so that his cattle can graze on it. Each animal eats about 2 square metres of grass in a day. Every 10 days, the grass grows enough so that it can be eaten again. How many days can he keep the animals in the enclosure before they run out of food?

The farmer doesn't need an exact answer to his problem, but he would like some advice on how to figure out the answer approximately. So far he has <u>not</u> given you enough information to solve the problem. What else would you need to know in order to give him some advice?

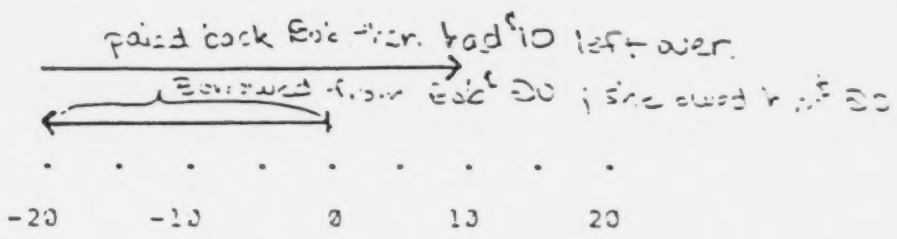
how many cows there are

Even if you had all of the information, there are several ways to get an approximate answer. How would you do it?

I would ask him what dimensions the fenced of area would be. I would find out how many square meters of grass there are. I would divide that by the number of cattle to get how much grass each would have. Then I would divide the total amount of grass per cow by 2 sq m and multiply the number of days the cows would have enough grass.

Relational Response to Task 3

The diagram below was used to illustrate a problem in an arithmetic book. Explain the kind of problem that it would be useful for solving.



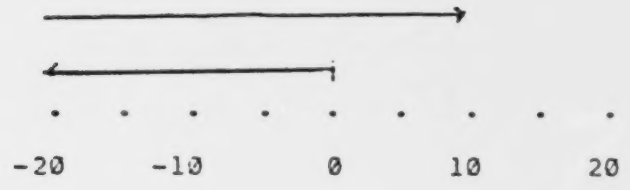
This diagram would be useful for solving a problem-solving question such as ...

" Jane went to the store with no money. She borrowed some money from Bob to pay for the groceries. After borrowing $20 from Bob, she won a lottery draw. She won $30. After paying back Bob the money she owed him, how much money did she have for herself? Use a number line to represent your answer.

or ... she walked from the starting gate backwards for 20 m, then she walked forward for 30m, past the starting gate. How far in front of the starting post would she be?

Extended Abstract Response to Task 3

The diagram below was used to illustrate a problem in an arithmetic book. Explain the kind of problem that it would be useful for solving.



This problem would be useful for solving a problem with integers.

$\Rightarrow \quad (-20) + 30 = +10$

The number and points above it are on a 'number line'. The equation states to go backwards, or subtract 20 paces from your present standing at 0. Next, advance or go forwards 30 paces. The result will be 10.

NOTE: ... diagram simplifies learning negative numbers because in reality negative or less than 0 of any object does not exist. It is an abstract concept.

APPENDIX 3

SUMMARY STATISTICS

Grade 5

Background Variables

Variable	Group	LS	Q1	Med	Q3	HS***
CTBS Voc. Grade 3	GIA	11	24	27	29	31
	Nom.	20	24	26	27	30
	GATE	11	24	27.5	29	30
National Norms			15	20	24.5	
CTBS Comp. Grade3	GIA	16	40.5	49.5	53	56
	Nom.	28	39	44	48	54
	GATE	17	43	48	51	56
National Norms			23	33	42	
CCAT Verbal Gr. 4	GIA	48	72.5	80	85	95
	Nom.	54	70	74.5	78	86
	GATE	60	75	78	83	95
National Norms			51	61	73	
CCAT Non verbal Gr. 4	GIA	64	71.5	75	78	80
	Nom.	50	67.5	72.5	77	79
	GATE	53	65	71	75	78
National Norms			53	67	73	

*** In this table and the ones to follow, the following abbreviations are used:

LS - The lowest score in the sample
Q1 - The score corresponding to the 25th percentile
Med - The median score
Q3 - The score corresponding to the 75th percentile
HS - The highest score in the sample

LPQ Variables

Variable	Group	LS	Q1	Med	Q3	HS
Surface Motive	GIA	7	12	15	17	25
	Nom.	9	14	16	19	26
	GATE	9	16	18.5	20	29
Surface Strategy	GIA	9	12	15	18	23
	Nom.	7	14	16	18	24
	GATE	12	15	17	19	24
Deep Motive	GIA	10	19	23	26	29
	Nom.	13	20	23	25	29
	GATE	13	18	21	24	29
Deep Strategy	GIA	11	17	19	21	27
	Nom.	13	16	19	22	30
	GATE	8	15	7	20	27
Achieving Motive	GIA	11	14	18	21	27
	Nom.	11	16	17	20	29
	GATE	7	15	16.5	20	29
Achieving Strategy	GIA	11	17	19	25	29
	Nom.	12	17	21	24	30
	GATE	7	16	18.5	22	29

Grade 6

Background Variables

Variable	Group	LS	Q1	Med	Q3	HS
CTBS Voc. Grade 3	GIA	16	26	29	30	34
	Nom.	12	24	26	28	29
	GATE	16	23	27.5	29	30
National	Norms		15	20	24.5	
CTBS Comp. Grade3	GIA	20	44.5	50	54	59
	Nom.	28	40	45	47	54
	GATE	23	41	44.5	53	56
National	Norms		23	33	42	
CCAT Verbal Gr. 4	GIA	44	72.5	82	87	93
	Nom.	41	69	77	82	91
	GATE	23	70	76	83	91
National	Norms		51	61	70	
CCAT Non verbal Gr. 4	GIA	58	69	74	77	80
	Nom.	61	70	74	76	79
	GATE	32	69	73	75	78
National	Norms		53	67	73	

LPQ Variables

Variable	Group	LS	Q1	Med	Q3	HS
Surface Motive	GIA	8	15	17	19	22
	Nom.	11	14.5	17	19.5	26
	GATE	10	15	17	20	24
Surface Strategy	GIA	10	14	15	19	23
	Nom.	9	14	16	19	27
	GATE	10	15	17	20	27
Deep Motive	GIA	13	18	21	23	29
	Nom.	8	18	21	24	29
	GATE	6	18	20	23	27
Deep Strategy	GIA	8	16	17	19	25
	Nom.	6	15	18	21	29
	GATE	6	16	18	21	27
Achieving Motive	GIA	10	15	17	20	27
	Nom.	11	16	17	20	29
	GATE	8	14	18	21	26
Achieving Strategy	GIA	10	17	18	24	28
	Nom.	6	15.5	19	23	26
	GATE	7	16	18	24	28

Outcome Variables

Variable	Group	LS	Q1	Med	Q3	HS
CTBS Vocab. Gr. 6	GIA	21	34	38	40	44
	Nom.	26	31	35	39	44
	GATE	22	34	36	39.5	43
National	Norm		20	29	35	
CTBS Comprehension	GIA	31	53	59	63	72
	Nom.	28	47	52	59	67
	GATE	17	37.5	53	62	68
National	Norm		23	31	40	

Grade 8

Background Variables

Variable	Group	LS	Q1	Med	Q3	HS
Calgary Math Gr. 6	GIA	52	75	82	89	98
	Nom.	65	75.5	81	88	93
	GATE	49	73	81	88	96
	Norms		53	65	74	
CCAT Verbal Gr. 7	GIA	54	73	76.5	81	92
	Nom.	23	66	74	82	97
	GATE	53	70	75.5	84.5	93
National	Norms		48	57	65	
CCAT Non Verbal gr. 7	GIA	29	68	72	75	78
	Nom.	56	66	69	73	76
	GATE	60	69	72	75	79
National	Norms		53	60	67	
CCAT Quantitative Gr. 7	GIA	25	49	52.5	55	60
	Nom.	34	44	50	53	58
	GATE	30	51	53.5	56	59
National	Norms		36	42	48	

LPQ Variables

Variable	Group	LS	Q1	Med	Q3	HS
Surface Motive	GIA	10	14	16	19.5	25
	Nom.	6	13	15.5	18	27
	GATE	8	12	15	18	21
Surface Strategy	GIA	11	14.5	16	18	22
	Nom.	9	13	15	17	22
	GATE	8	11	15	17	26
Deep Motive	GIA	16	19	21	23	28
	Nom.	11	19	23	26	29
	GATE	10	21	22	23.5	30
Deep Strategy	GIA	8	15.5	17.5	20.5	24
	Nom.	10	17	19	21	29
	GATE	6	14.5	18	21	29
Achieving Motive	GIA	8	13.5	16.5	20	26
	Nom.	11	15	17	20	25
	GATE	6	11	14	18	30
Achieving Strategy	GIA	6	12.5	15.5	20	26
	Nom.	7	14	19	21	29
	GATE	8	12.5	16	20	30

Outcome Variables

Variable	Group	LS	Q1	Med	Q3	HS
Nelson Vocab Gr. 8	GIA	53	66	73.5	81	92
	Nom.	41	65.5	74	85	97
	GATE	36	64	70	76	94
National	Norm		46	56	65	
Nelson Paragraph Comp.	GIA	35	56	62	67	72
	Nom.	42	52	62	64.5	73
	GATE	23	60	66	71	85
National	Norm		34	43	52	

Grade 9

Background Variables

Variable	Group	LS	Q1	Med	Q3	HS
Calgary Math Gr. 6	GIA	62	76	81	87	92
	Nom.	34	70	78	87	96
	GATE	41	64	77	82.5	99
	Norm		53	65	74	
CCAT Verbal Gr. 7	GIA	55	71	77	82	90
	Nom.	23	68	73	80	90
	GATE	63	72	77	82	91
National	Norm		48	57	65	
CCAT Non Verbal gr. 7	GIA	60	65	69	73	85
	Nom.	33	63.5	69	73	77
	GATE	62	65	70.5	73	76
National	Norm		53	60	67	
CCAT Quantitative Gr. 7	GIA	35	47	50	55	57
	Nom.	15	47	51	54	65
	GATE	38	48	51.5	55	59
National	Norm		36	42	48	

LPQ Variables

Variable	Group	LS	Q1	Med	Q3	HS
Surface Motive	GIA	9	14	16.5	20	24
	Nom.	7	12.5	15	19	27
	GATE	9	13	16.5	21	23
Surface Strategy	GIA	9	14	15	18	23
	Nom.	8	13	15	19	24
	GATE	9	13	16	18	25
Deep Motive	GIA	12	20	21.5	24	28
	Nom.	13	20	23	25	30
	GATE	10	21	22.5	24.5	28
Deep Strategy	GIA	14	16	18	20.5	27
	Nom.	10	16	18	21.5	24
	GATE	12	16	19	22	27
Achieving Motive	GIA	10	13.5	16.5	19	27
	Nom.	6	14	17	20	30
	GATE	8	12	16.5	20	26
Achieving Strategy	GIA	8	13.5	16	18.5	25
	Nom.	7	16	19	22	26
	GATE	7	14.5	17	19	25

Outcome Variable

Variable	Group	LS	Q1	Med	Q3	HS
Test of Appraising Observations	GIA	19	27	31	34	40
	Nom.	21	26.5	31	35	43
	GATE	17	26	30	34	43
National	Norm		27	32	35	

Results for SOLO Analysis

Category 1= Prestructural
Category 2= Unistructural
Category 3= Multistructural
Category 4= Relational
Category 5= Extended Abstract

All table entries are frequencies.

Grade 5 Writing Tasks

Group	1	2	3	4	5	Total
GIA	0	12	13	4	0	29
Nom.	0	12	19	5	1	37
GATE	0	11	13	3	3	30
Total	0	35	45	12	4	96

Grade 5 Arithmetic Tasks

Group	1	2	3	4	5	Total
GIA	0	9	15	5	0	29
Nom.	0	16	18	3	0	37
GATE	0	8	14	8	0	30
Total	0	33	47	16	0	96

Grade 6 Writing Tasks

Group	1	2	3	4	5	Total
GIA	0	17	7	6	4	34
Nom.	0	7	17	14	1	39
GATE	0	13	11	6	3	33
Total	0	37	35	26	8	106

Grade 6 Arithmetic Tasks

Group	1	2	3	4	5	Total
GIA	0	5	14	13	2	34
Nom.	0	9	14	16	0	39
GATE	0	2	14	14	3	33
Total	0	16	42	43	5	106

Grade 8 Writing Tasks

Group	1	2	3	4	5	Total
GIA	0	1	19	9	1	30
Nom.	0	1	14	13	5	33
GATE	0	9	16	16	7	48
Total	0	11	49	38	13	111

Grade 8 Arithmetic Tasks

Group	1	2	3	4	5	Total
GIA	0	14	10	6	0	30
Nom.	0	7	11	14	1	33
GATE	0	13	17	12	6	48
Total	0	34	38	32	7	111

Grade 9 Writing Tasks

Group	1	2	3	4	5	Total
GIA	0	0	11	14	4	29
Nom.	0	0	14	14	11	39
GATE	0	3	13	10	5	31
Total	0	3	38	38	20	99

Grade 9 Arithmetic Tasks

Group	1	2	3	4	5	Total
GIA	0	6	11	10	2	29
Nom.	0	8	18	10	3	39
GATE	0	13	13	4	1	31
Total	0	27	32	24	6	99

Characteristics of Giftedness

When we talk about someone being intellectually gifted, we mean many things. Whether we are experts, parents, teachers, students or interested members of society, each of us has a slightly different understanding about what the phrase "intellectually gifted" implies. This questionnaire is an attempt to find out the variation in opinion that exists among people who have an interest in gifted education. It is part of a larger, three year study commissioned by the Calgary Board of Education for "...the evaluation of congregated and integrated program and service benefits to students assessed as gifted and talented..." (Board Minutes of January 21, 1986).

In this questionnaire, the term gifted is used as a short form for generally intellectually advantaged. It is not being used to describe students with a specific talent.

There are three sections to the questionnaire. In Section I, pairs of contrasting views concerning the nature of giftedness and gifted education are presented for your reaction. In Section II, you are asked for your opinions on the characteristics of gifted students. In Section III you are asked to identify the strengths and weaknesses of the program for gifted students that you (or your children) are involved in.

Individual responses will remain anonymous, but in order compare the opinions of different groups it is necessary to collect some background information.

After you have responded to the questionnaire, place it in the envelope provided, seal it and return it to the principal of the school. The results will be collected from the schools in about two weeks. If you have questions concerning this study, or if you have comments that you would like to direct to the investigator, please feel free to send them to:

Dr. Thomas Maguire
Division of Educational Research Services
University of Alberta
Edmonton, Alberta T6G 2G5
Phone 492-3762 (days)

APPENDIX 4

PARENT AND TEACHER QUESTIONNAIRE WITH SUMMARY RESULTS

Background Information

The questionnaire is being sent to parents and teachers of gifted students.

Indicate whether you are a parent of a gifted child, a teacher of a gifted child or both:

Parent____ Teacher____ Both____

The Calgary Board of Education has run two kinds of programs for gifted students. The congregated setting program was carried out in Oakley Centre until June of 1987, and since then it has been run as the "GATE" (Gifted and Talented Education) program out of Queen Elizabeth School. The second program involved special services to gifted students in their home school. Some gifted students have been in the regular program. With which of these variations have you (or your children) been involved?

Gifted students at Oakley____
Gifted students in GATE ____
Gifted students in special program in home school ____
Gifted students in regular program in home school ____

Check as many of these as apply.

Section I

In this section eight contrasting ideas are presented. Read each pair of contrasts and decide if you agree more with one position than the other. Indicate your degree of agreement in the scale provided. If you do not agree with any points in either position, check the "Neither" option. Space is provided for comments or clarifications.

Contrast 1:

Position A. Giftedness is a broad multifaceted concept involving intelligence, personality traits and social styles. Gifted people are bright, curious and persistent. They have good memories, keen powers of observation, excellent reasoning power and vivid imaginations. They are able to make good decisions, they are confident about their abilities and they are sensitive to other people.

Position B. The concept of intellectual giftedness is essentially about intelligence. Gifted people are those who are unusually bright. They have high potential for academic success.

Where do you stand?**

P	T	B	
40	42	31	___ 1. Very close to A
19	12	15	___ 2. Slightly closer to A than B
12	13	15	___ 3. Somewhere midway between A and B
10	10	19	___ 4. Slighty closer to B than A
14	17	4	___ 5. Very close to B

___ Neither A nor B

Comments

** Here and elsewhere the values in the P T and B columns are the proportions of Parents, Teachers and Both(i.e. people who are both parents and teachers) who checked these alternatives.

Contrast 2:

Position A. Giftedness is a static trait. It is something that you are born with. Although it may not be noticeable at a very young age, it becomes clear during childhood and stays with you for the rest of your life.

Position B. Giftedness is dynamic. While it may require a certain base of inherited ability, it can change over time. Many factors influence it. Experience can bring out extraordinary gifts. Personality factors can cause the potential to wither. Giftedness ebbs and flows over time.

Where do you stand?

P	T	B	
17	4	4	___ 1. Very close to A
13	7	8	___ 2. Slightly closer to A than B
16	11	19	___ 3. Somewhere midway between A and B
23	21	23	___ 4. Slighty closer to B than A
28	55	46	___ 5. Very close to B

___ Neither A nor B

Comments

Contrast 3:

Position A. Giftedness is a quantitative notion. Generally speaking, people fall along a continuum of brightness. We call people at the upper end, "gifted." The cutoff point between gifted people and other people is arbitrary, e.g. the top 4%.

Position B. Giftedness is a qualitative notion. Gifted people are distinctive. They think differently, they learn differently, and they act differently than other people. They have different characteristics than non-gifted people.

Where do you stand?

P	T	B	
19	20	15	___ 1. Very close to A
15	10	4	___ 2. Slightly closer to A than B
19	17	27	___ 3. Somewhere midway between A and B
16	16	15	___ 4. Slighty closer to B than A
23	32	23	___ 5. Very close to B

___ Neither A nor B

Comments

Contrast 4:

Position A. What is good educational practice for gifted students would not be good for all students. Gifted children need special educational facilities to meet their needs. They need a program that is significantly and visibly different with respect to content and teaching style from that experienced by other children.

Position B. Gifted education is simply "quality education" applied to bright children. Most students in regular classes would benefit from the programs that are recommended for gifted students.

Where do you stand?

P	T	B	
39	11	15	___ 1. Very close to A
21	12	12	___ 2. Slightly closer to A than B
11	17	8	___ 3. Somewhere midway between A and B
10	16	12	___ 4. Slighty closer to B than A
16	40	46	___ 5. Very close to B

___ Neither A nor B

Comments

Contrast 5:

Position A. Teachers of gifted children need special training.

Position B. Any skilled, dedicated, creative teacher could teach gifted children.

Where do you stand?

P	T	B	
49	16	15	___ 1. Very close to A
14	10	12	___ 2. Slightly closer to A than B
13	17	15	___ 3. Somewhere midway between A and B
9	24	15	___ 4. Slighty closer to B than A
13	32	19	___ 5. Very close to B

___ Neither A nor B

Comments

Contrast 6:

Position A. Gifted education is education for the elite. It creates special opportunities for the education of children of intelligent, vocal parents.

Position B. Special education for gifted students is like special education for any identifiable group of students. It represents the attempt of a democratic society to provide opportunities for all children to develop to their fullest potential.

Where do you stand?

P	T	B	
4	2	0	___ 1. Very close to A
1	2	4	___ 2. Slightly closer to A than B
2	5	4	___ 3. Somewhere midway between A and B
8	14	15	___ 4. Slighty closer to B than A
83	74	73	___ 5. Very close to B

___ Neither A nor B

Comments

Contrast 7:

Position A. The education of gifted children should allow them to pursue their own interests with a minimum amount of interference. The role of the teacher should be to arrange a stimulating environment in which students can develop their own potentials. Gifted students flourish in a class that is unstructured, but rich in resources and opportunities for exploration.

Position B. Teachers of gifted students must be active guides in the learning process. They must monitor progress, insist on high standards of achievement and encourage persistence and self discipline in their students so that the students will achieve their maximum potential.

Where do you stand?

P	T	B	
7	10	0	___ 1. Very close to A
5	8	12	___ 2. Slightly closer to A than B
22	22	31	___ 3. Somewhere midway between A and B
20	18	8	___ 4. Slighty closer to B than A
44	42	46	___ 5. Very close to B

___ Neither A nor B

Comments

Contrast 8:

Position A. Programs for gifted students are very difficult to evaluate. The goals are usually directed toward the development of flexible, creative thinking skills. Since these are difficult to assess, and since tests themselves may actually work against the achievement of these goals, it is not appropriate to measure the success of the program using paper and pencil tests.

Position B. It is true that giftedness is an abstract mental concept, but it must lead to some demonstrable achievement. Otherwise, what is its relevence to education? Programs for gifted students should have outstanding scholarship at the centre of their focus and this can be shown using appropriate testing programs.

Where do you stand?

P	T	B	
12	14	8	___ 1. Very close to A
11	19	15	___ 2. Slightly closer to A than B
25	29	35	___ 3. Somewhere midway between A and B
19	20	8	___ 4. Slighty closer to B than A
26	16	19	___ 5. Very close to B

___ Neither A nor B

Comments

Section II

The second part of the questionnaire deals with characteristics of gifted students. It is an attempt to find out how distinctive you think various characteristics of gifted students are. The characteristics have been selected from many sources. Some appear to be more fundamental than others.

Read each characteristic and think about how common it would be in a group of gifted students and how common it would be in a group of regular students of the same age. Estimate the proportion of students who possess the characteristic in each group.

VH - Very High (more than 95% possess the characteristic)
H - High (75% to 95%) possess the characteristic)
M - Middle (between 25% and 75%)
L - Low (between 5% and 25% possess the characteristic)
VL - Very Low (less than 5% possess the characteristic)

Think about students that you know at a particular age level,(if you are a parent think about your gifted child and other children of the same age) and make all of your judgments in relation to them. Circle the proportion that seems most accurate to you.

Characteristic	% of Gifted					% of Regular				
	VH	H	M	L	VL	VH	H	M	L	VL
Advanced vocabulary	54	41	14	1	0	0	4	76	19	4
Strong memory for details	44	43	13	1	0	1	7	79	14	1
Interested in complex problems	39	46	14	0	0	0	4	51	38	7
Keen powers of observation	45	41	14	0	0	1	13	73	13	1
Able to think abstractly	49	40	9	3	1	0	3	59	33	5
Vivid imagination	45	42	13	1	0	1	24	67	7	1
Tolerance for ambiguity	9	30	30	24	7	0	7	52	28	5
Questioning attitude	48	44	7	0	0	1	16	68	15	0
Can produce many ideas	42	46	12	0	0	1	11	73	15	1
Can adapt and improve ideas	30	60	9	0	0	0	9	66	24	1
Sensitive to other people	15	23	48	13	2	2	13	79	6	1
Able to influence others	12	43	39	6	1	1	11	77	10	10
High self confidence	15	32	46	7	1	0	9	80	10	0
Can work independently	27	39	31	2	0	1	8	76	15	0
Can communicate effectively	30	45	24	1	0	1	10	81	8	0
Does not fear being different	15	27	40	15	3	1	6	58	29	7
Well-developed sense of humour	22	34	37	6	1	1	15	74	10	1
Works persistently	16	31	46	6	1	0	6	80	12	1
Uninhibited in giving opinions	31	45	24	1	0	2	12	72	14	1
Energetic	22	38	39	1	1	3	20	74	3	0

Characteristic	% of Gifted					% of Regular				
Excellent social skills	7	19	58	15	2	1	19	78	7	0
High self esteem	8	26	57	8	1	1	8	83	9	1
Makes friends easily	6	17	56	19	2	1	26	71	1	0
Adjusts to new situations	11	31	51	6	0	0	11	82	6	1
Is accepted by other students	8	16	59	15	3	2	24	71	2	0
High achievement in all areas	13	43	38	7	0	0	2	62	32	4
Excellent physical skills	5	14	65	14	1	0	15	80	4	0
Intellectual risk taker	18	53	26	3	0	0	2	58	36	3
Reads voraciously	45	36	18	1	0	0	5	60	33	2
Enjoys mathematics	26	41	31	2	1	0	6	70	24	1
Patient in approach to tasks	4	17	50	26	4	0	6	80	12	1
Good tolerance for boredom	3	7	22	39	29	0	7	58	31	4
Sensitive to beauty	15	28	53	4	0	1	14	79	6	1
Accepts disorder	9	22	49	18	3	1	10	76	12	0
Enjoys working alone	31	36	29	4	0	0	5	69	24	3

Section III

This section consists of two parts. The first part is like a report card in which you are asked to assess the performance of the school in relation to various aspects of gifted education. The purpose of this is to identify areas of strengths and weakness. This information will be helpful in making decisions about resource allocation.

For this portion of the questionnaire the rating scheme is as follows:

S = Strong performance
A = Adequate performance
W = Weak performance
NA = Not applicable (you do not consider this aspect to be a relevant feature of the program in your school)
UN = Unknown (you do not have sufficient information to make a judgment)

Circle one alternative to each aspect.

1. Special attempts are made for identifying gifted and talented students.

	S	A	W	NA	UN
Parents	21	42	21	5	11
Teachers	35	40	19	1	4
Both	50	35	8	4	1

2. Programs have been designed to fit the needs of individual students.

	S	A	W	NA	UN
Parents	15	31	41	4	9
Teachers	14	57	27	0	2
Both	19	50	31	0	0

3. Provisions for gifted and talented students are distinctive.

	S	A	W	NA	UN
Parents	21	28	35	6	10
Teachers	13	44	34	5	4
Both	31	31	38	0	0

4. Specific objectives are set for students or groups of similar students.

	S	A	W	NA	UN
Parents	13	34	27	6	21
Teachers	9	39	33	6	12
Both	12	48	24	12	4

5. Systematic procedures are used to monitor the progress of students.

	S	A	W	NA	UN
Parent	20	38	25	4	13
Teachers	13	42	30	3	11
Both	19	35	38	0	8

6. Provisions are made for recognizing excellence in students who are gifted or talented.

	S	A	W	NA	UN
Parents	20	34	26	5	15
Teachers	18	48	27	3	4
Both	27	46	19	0	8

7. Clearly observable practices are in place to meet the social and emotional needs of gifted and talented children.

	S	A	W	NA	UN
Parents	14	22	48	5	12
Teachers	11	28	49	2	9
Both	23	35	42	0	0

8. Generally speaking, gifted and talented students are thriving under the educational programs that are provided.

	S	A	W	NA	UN
Parents	18	26	42	2	12
Teachers	11	55	19	1	14
Both	27	35	39	0	0

Please indicate any particular areas of strength or weakness that you believe are worthy of note.

The second part of Section III seeks your reaction to changes in the services that are provided to gifted and talented students.

In the Spring of 1987 the Calgary Board of Education found it necessary to reorganize (and in some cases reduce) services to gifted and talented students and to their teachers. Part of the reorganization involved the movement of the congregated setting from Oakley Centre to Queen Elizabeth, and part of the reorganization involved a reduction in specialist services available to schools throughout the system. If we set aside the 1987-88 school year as a time of adjustment, and compare current activities and programs with those of the 1986-87 school year, do you see any major differences in the educational opportunities provided for gifted and talented students?

Thank you for your assistance.